

THE IRON AGE

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Covering Airships with Metal

Duralumin Sheets to Replace Fabric
—Rivets Put in at 5000 Per Hour
—Advantages of Metal Cover



THE building of a metal-clad rigid airship, which will be covered with thin sheet duralumin instead of the usual fabric, making it of all-metal construction, promises to be an important step in aircraft development. A contract for an all-metal airship of demonstration size, 150 ft. long and 53 ft. in maximum diameter and having a gas capacity of 200,000 cu. ft. or one-tenth of the size of the Shenandoah, was placed recently by the Navy Department with the Aircraft Development Corporation, Detroit, which has commenced the construction of the ship and which under the contract is to be completed in 400 days. This company has spent nearly four years in experimental work in connection with metal-clad airships.

Zeppelin started to use duralumin in the construction of airships during the war and toward its close this metal was used in airplane construction. A late development is the all-metal airplane of the same material.

Metal Covering Reinforces Frame

An important advantage claimed for the metal-clad airship is that the duralumin covering carries the tensile and shear stresses, and supports and reinforces

the frame members, while in the fabric covered airship the rigid frame members receive no material support from the fabric. The metal covering permits a radical difference in the frame design from that used for the fabric covered ship. The general principle of construction is said to be very similar to that of a steamship in which neither the frame plating nor structural members are self sufficient but each supports and reinforces the other. As designed, the metal-clad airship is short and compact. It is stated that the metal-clad construction makes possible an actual reduction in weight, although because of the increased factors of safety the weight will be about the same as that of a fabric-covered airship.

The frame will be built of channels, angles and special sections, including some built-up type of closed sections. Duralumin will be used throughout except in wire for bracing the transverse frames for which high-grade piano wire will be used. All of the frame members will be joined by riveting, no welding being used in the construction.

The duralumin covering will be 0.008 in. in thickness, weighing 0.14 lb. per sq. ft. including seams. The sheet covering will be placed on the frame in the form of panels 16 to 18 in. wide and 2 to 16 ft. long. These will be placed circumferentially around the frame.

One of the important problems confronted in the experimental work was to make the metal hull gas



The Special Automatic Riveting Machine (Right) and Method of Application to Riveting Very Thin Sheets of Metal. Operates similar to a sewing machine

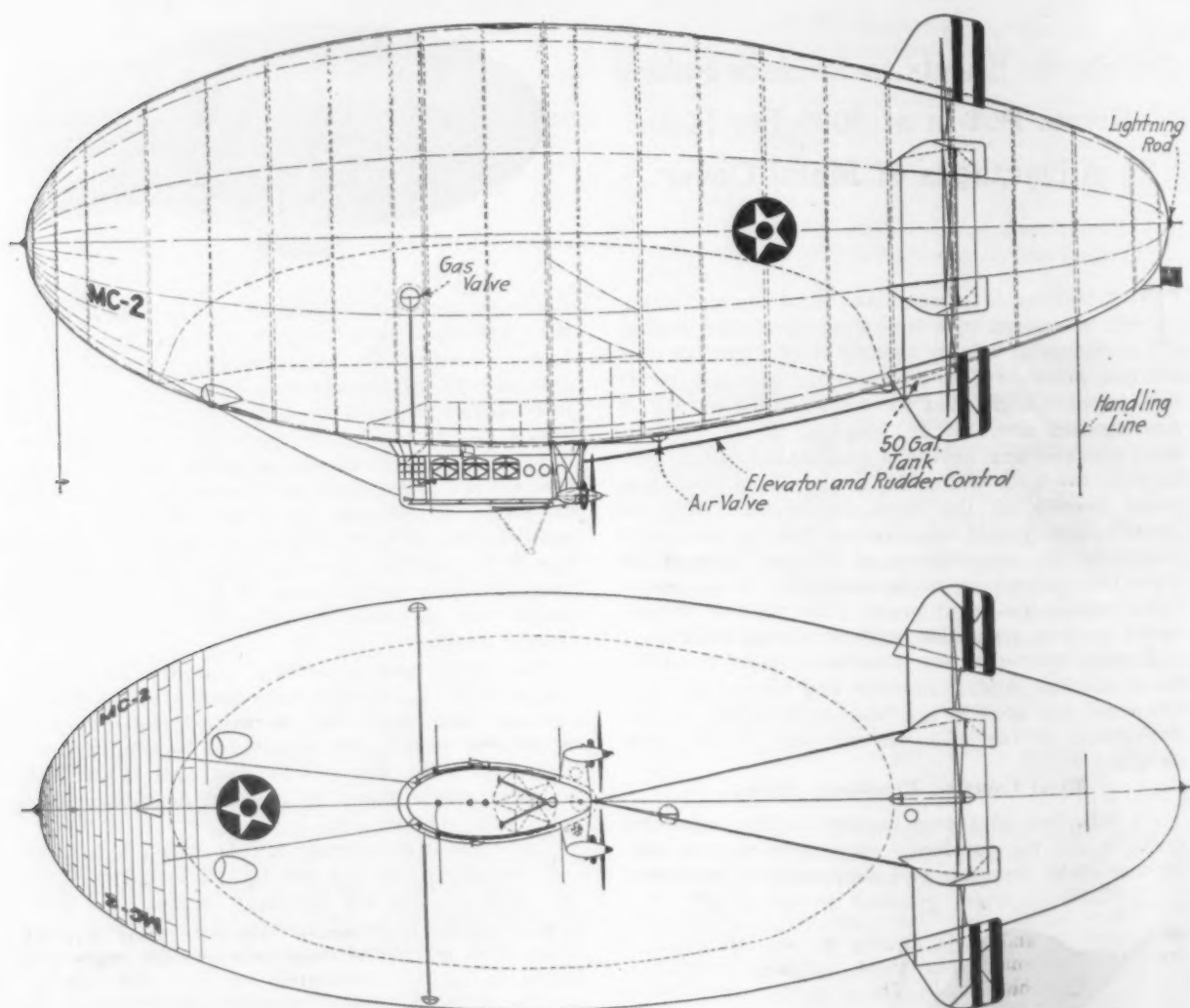
tight. In the hull there will be a fabric diaphragm separating the air compartment from the gas above. However, this usually will be kept flat against the bottom of the hull, in effect making a gas container of the entire hull, through the greater part of which the gas will be in direct contact with the metal. Many types of seams were tried before a satisfactory method of riveting the sheets together was worked out. With the plan that was finally adopted it is claimed that the gas leakage is almost negligible, being only a fraction of the leakage through rubberized fabric.

5000 Rivets Per Hour

The riveting of the seams of the airship will require about 3,000,000 very small rivets, and one of

the problems encountered was to devise methods for doing the riveting mechanically. The seams having a width of $\frac{1}{2}$ in. will be joined with three rows of rivets, 12 per in. in each row. A special automatic riveting machine has been developed which will make the rivets from wire 0.039 in. in diameter. This will automatically feed the wire into the machine, make the rivets, feed the work and put the rivets in place at the rate of over 5000 rivets per hr. This machine in a way operates considerably like a sewing machine. It is stated that the strength of the seam will be greater than the yield point of the sheet itself.

One quality that has been found lacking in duralumin seams is rust that works into the seam of a steel gasometer and helps to make it tight. To take



General Features of the Metal-Clad Airship

SOME of the general structural features of the metal-clad airship are shown in this illustration. Some of the facts concerning its general dimensions and estimated performance are as follows:

GENERAL DIMENSIONS

Gas capacity.....	200,000 cu. ft.
Length of hull.....	150 ft.
Max. dia. of hull.....	53 ft.
Length of car.....	24 ft.
Width of car.....	8.5 ft.
Thickness of skin.....	0.008 in.
Power (at 1700 r.p.m.).....	400 h.p.
Duralumin propeller.....	2 blades

ESTIMATED PERFORMANCE

	Helium	Hydrogen
Gross lift.....	12,600 lb.	13,800 lb.
Useful lift:		
Crew (4).....	750 lb.	750 lb.
Passengers.....	(6) 1,100 lb.	(10) 1,900 lb.
Fuel.....	1,500 lb.	1,500 lb.
Oil.....	200 lb.	200 lb.
Weight empty.....	8,700 lb.	8,700 lb.

The commercial range of the airship, with a crew of four and with passengers or cargo, is 720 miles with helium as the lifting power, and 1200 miles with hydrogen. The maximum range is estimated as 1200 miles with a crew of only four when helium is the lifting medium and 2200 miles when hydrogen is used. The maximum speed is 70 miles per hr. and the cruising speed 55 miles per hr.

care of this deficiency a specially prepared seam dope will be used. A special coating has been provided to protect the duralumin hull plating against corrosion.

Either hydrogen gas or helium can be used for this airship. One of the important advantages claimed for the metal-clad airship as compared with the fabric-covered type is that it has a fireproof structure in which hydrogen gas being inclosed in the metal hull is as safe as gasoline in a tank.

DEVELOPING PLANT FOREMEN

How Best to Meet the Need of Industrial Leaders and Teachers

BY JAMES B. ORBISON*

ONE of the most important problems confronting industry today is the need for efficient, broad-minded, intelligent foremen. The need for a higher standard of leadership is an urgent one—one which is commanding the serious thought of executives. How to supply this need in a practical manner—how to develop a higher standard of intelligence, is being given a great deal of thought.

Taking precedent as a guide, we find that foremen as a rule have been chosen for their experience and knowledge of a given product, rather than for any set standard of intelligence. Without doubt the almost universal rule of accepting or choosing men with experience only, with no fixed demand for a standard of intelligence to go with it, has gone to create a belief in the minds of those ambitious to assume responsibilities, that experience was all that was necessary, and all that was expected.

From various sources we hear the statements made about the day of the "driver" being past. We also hear that even the title "foreman" is no longer proper. We are reminded of the fact that the need of industry is for "leaders" and "teachers." But we are not told whence the latter will come, or what method or methods will be formulated for developing them.

If industry is to accept facts, facing and dealing with them as present day requirements demand, the conclusion will readily be arrived at that it is impossible to take present day foremen and make "leaders" and "teachers" out of them, any more than we could expect to take the common layman and make a college professor out of him. True, we could take the layman and term him professor, but the title would not in any manner change the ability of the man.

Foremen Have Not Kept Pace

Industrial needs and even the demands have changed, but our so-called "foremen" have not kept pace with the changed conditions. Their honesty of purpose is above reproach and their loyalty in general possibly cannot be questioned; but these qualities no longer measure up to the needs. The call is for a higher standard of intelligence.

In the great majority of cases foremen have grown up within the organization of which they are a unit. Their acquaintance with the workers and their knowledge of the product are considered as assets, and the belief has been reflected that such assets were about all the requirements that were necessary. The foremen, too, because of having grown up within the organization, naturally command a friendly and sympathetic standing with the management, all of which stands in the road of any contemplated changes being made.

Two Plans Proposed

The paramount question is how best to meet the demands for a higher standard of foremanship? A careful survey of the situation leads to the belief that there are but two logical plans available. First, through formulating methods of imparting a higher standard of intelligence and learning to the present class of "foremen," thereby getting the benefit of



Testing the Transverse Girders of the Frame

their knowledge and experience, which when linked up with a higher and more comprehensive knowledge of men and business details, should develop a class of men who could adapt themselves to the needs of the hour and prove efficient "leaders" and "teachers."

The second plan would be to take the technical man with his higher degree of intelligence and learning, and place him in position to absorb the knowledge and experience necessary to the conduct of operations. The question naturally arises, could the technical man absorb the knowledge and experience necessary for the successful conduct of a business, or would he of necessity have to gain these requisites through actual contact with the details of operation?

Assuming the latter to be necessary, would such a man, coming out from college, be willing to go through the process of gaining such experience?

Both plans have more or less merits, and both have a strong following among executives. But a careful survey and analysis of the plans lead those of conservative minds to believe that the first-mentioned plan would prove the most feasible. It is pointed out by conservative and careful thinkers that our present "foremen" would more readily subscribe to any logical plan leading them on to a higher standard of intelligence than would the technical man to gain knowledge and experience.

Educating the "foremen" resolves itself into an economic question. We not only provide ways and means for the child to attain an education, but we make it obligatory for it to take advantage of such provisions. For economic reasons, industrial institutions must not only provide methods of imparting greater intelligence to the "foremen," but it must be seen to that the latter take advantage of such plans as may be outlined for their advancement.

Industry Is Being Penalized

The system has been wrong which has allowed and tolerated the picking out of a man from within the ranks, placing him in authority and holding him responsible for results, with no training for the responsibilities, other than merely showing an honest desire to do the best he can. "Run the department just as if it were your own," coming from the management; "I will do the best I can," coming from the man. Little wonder that industry is being penalized.

Industrially speaking, we have been drifting. There is a sharp extreme between the standard of present-day "foremen" and what the industries actually need and desire. This gap must be bridged by industry, otherwise it will never be accomplished.

*American Radiator Co., Springfield, Ohio, plant.

How Much Steel Can We Export?

Shrinkage of 2,000,000 Tons in Net Exports of Leading Countries in 1925 as Compared with 1913—Keener International Competition Coming in Neutral Markets

BY PAUL M. TYLER

IN an analysis of steel export trade possibilities, one of the first steps is to ascertain the total quantity that can be sold abroad. Forecasts for the immediate future can be made only from the lessons of the past and the most concise information as to world trade is contained in the import and export statistics of the big six steel making nations.

Virtually all the iron and steel that appears in international trade is supplied either by the United States or by one of the principal producing countries of Europe. Sweden exports a relatively small tonnage, mainly high-priced steel, and India is developing a brisk business in pig iron; nevertheless France, Germany, Great Britain, Belgium and Luxemburg, and the United States accounted for 90 per cent of the world's output in 1925 and supplied a much greater proportion of the total exports. Elsewhere, iron and steel production is almost exclusively for local consumption.

European Cross Currents

From the American standpoint, particularly, the simple sum of the exports from these countries means little. There are countless cross currents in the iron and steel trade and nowhere are they more marked than in Europe where there is a constant movement, back and forth, across the international boundaries. As these boundaries are political rather than economic, long established trade routes or immutable facts of geography define natural market areas that may extend over from one country into another. Different qualities of steel are made in different localities and, occasionally, must be exchanged. Speculative dealings, especially those of a more or less temporary nature such as result from sudden currency fluctuations, have been abnormally common during the past few years.

Moreover, there are important industries in Germany, Belgium and Great Britain which regularly import semi-finished steel for rolling into finished forms. Probably the best known of these is the Welsh tin plate industry which does not hesitate to buy its sheet bars on the Continent whenever such bars are cheaper than the home supply and which transforms them into black plate or tin plate both for British consumption and for export.

Europe's Iron and Steel Map Redrawn

Despite the ever-growing number of trade agreements, price pools, and similar international arrangements, these local currents in European trade are always changing. Since the war the map of Europe has been redrawn through the midst of the pivotal iron and steel producing regions. While Germany has made strenuous efforts to round out her productive facilities so as to make up for the loss of her former furnaces in Lorraine, these furnaces, which in the past contributed so largely to Germany's prominence in export markets, are now owned by France. Because of the new frontiers, business that would have been classed before the war as domestic is now regarded as foreign trade.

Practically, however, these over-the-border transactions are of small concern to the American exporter because he cannot hope to sell his products in what is

really the heart of competitor territory. Even if our domestic steel were cheaper at its source than that made on the Continent—which it distinctly is not—it would still prove excessively unprofitable to sell it in France, Germany, or similarly distant steel-making countries where canals and other waterways provide direct communication at low cost between producing and consuming works. The United States has somewhat analogous advantages in the interior of Canada, in certain parts of Mexico, and in a few other places. Iron and steel products are so bulky that the balance is likely always to be in favor of any local producer within his own territory.

A Contest for Non-Producing Countries

The export trade in iron and steel, therefore, is essentially a duel between the United States and Europe in neutral markets. So long as we confine our attention to gross tonnages without analyzing the quality of the steel or the character and form of the product, there is no need to distinguish even between Great Britain and the Continent. Inasmuch as our strategic location with respect to Canada may be roughly balanced against their advantages with respect to their neighbors in Europe, the real conflict is confined largely to Latin America and the Far East. Africa, and the various islands in the Pacific may also be included in this contested territory, in so far as the growing needs of these regions fail to be met by local industries—more specifically, by existing or projected works in India, Australia, and other British possessions.

An approximately correct measure of the amount of steel sold in these neutral markets may be obtained by adding the *net exports* of all the principal countries. These net exports, which appear in the accompanying table along with the gross exports, are obtained for each country by deducting the imports from the gross exports. Through this simple device, we eliminate automatically the trade across the European frontiers and likewise the business which foreign countries do in the United States. Considered solely on a tonnage basis, this apparently rough-and-ready procedure is quite accurate enough. The figures, which are calculated from original data published by the (British) National Federation of Iron and Steel Manufacturers, are monthly averages and include pig iron as well as steel. For 1926, the month of April is chosen as representative because it was the last month before the British strike.

World's Gain in Steel Since 1913 is Nearly All American

One of the most striking points brought out by the table of gross and net exports is the fact that while the *gross* exports have eventually equaled (and from time to time exceeded) pre-war, the *net* exports, although advancing rapidly during the early months of 1926, are still substantially less. On a 12-month basis, the decline has been from 12,400,000 tons in 1913 to 10,200,000 tons in 1925. This fact throws more light on the changes in world consumption. In 1913, the total production of steel by all countries, which is much the same thing as total world consumption, was a trifle

over 75 million tons. For almost five years after the war, it remained very much below this level and the 1913 output was not substantially exceeded until 1925 when a trifle less than 90 million tons was produced. The increase of less than 15 million tons does not seem remarkably great after the lapse of 12 years and particularly in view of the fact that all but about 1,000,000 tons of this increase came from the United States. France, Germany, Great Britain, and Belgium and Luxemburg, which furnished together a total of more than 31 million tons or almost exactly the same amount as the United States in 1913, were credited in 1925 with only 33 million tons, a gain of only 2,000,000 tons. While more steel was produced in some of the minor producing countries, the total of such increases was less by more than 1,000,000 tons than the decreases recorded in Russia and elsewhere.

During the past 12 years, therefore, the consumption of steel has increased by more than 50 per cent in the United States and, taking them as a group, by less than 6½ per cent in the five leading foreign producing countries. So much is more or less common knowledge. The point that has not been previously emphasized is that during the same period the consumption in the rest of the world—including all of the neutral markets—has declined by 8 per cent or more. Even in April of this year, which seems to have been an exceptionally good month, the net exports were somewhat less, and, unless there was some unreported expansion in production in these countries, consumption had not yet climbed back to what it was in 1913.

The Pig Iron Factor

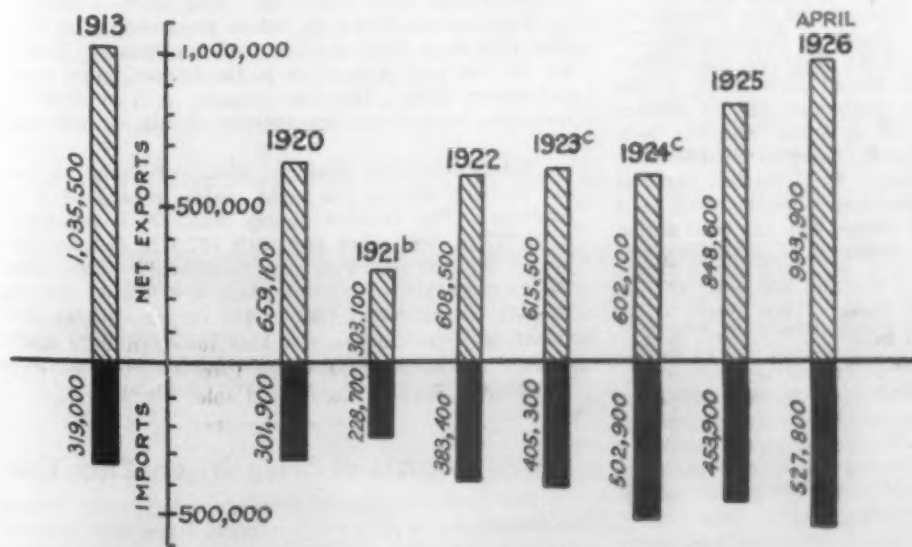
It will be remembered that the figures presented in the above table cover both iron and steel. Consideration must therefore be given to the effect of including

pig iron and semi-finished steel with more highly manufactured products. Since all steel goes back to the ingot, exports of crude steel are rightfully included with those of finished steel in a comparison of tonnages, despite the fact that the difference in degree of advancement may have a profound effect upon the balance between the values of the imports and exports of a country. There is more question as to whether pig iron should be included even in a general discussion of this sort because the bulk of that which is shipped overseas, and also a good deal of that which has been eliminated by the above method of calculating the net exports, is actually consumed by foundries which make cast iron pipe and other products and not by the steel industry.

Our Pig Iron Imports Large, but Exports Small

Roughly one-half of the present-day imports of iron and steel into the United States consist of pig iron, whereas our exports consist almost exclusively of steel and mostly of finished steel such as tin plate, sheets, and wire. Although pig iron has always formed a somewhat larger fraction of the exports from Great Britain and Germany and, latterly, of those from France, nevertheless, except between the producing countries themselves, the tonnages in international trade have always been fairly small relative to those of steel. As calculated by the method described above, the net exports of pig iron amounted to a total of only 90,000 tons monthly in 1913 and only 19,300 tons monthly in 1925.

This decline, which was due mainly to larger imports and smaller exports from both Great Britain and the United States, does not alter in any way the general conclusions as applied to iron and steel or to steel alone. In the first place, the reduction was partly off-



Total Exports and Imports of Iron and Steel for Six Producing Countries, Also Net Export Balances (Hatched Portion) as Taken from Last Two Columns in Table Below. (Monthly averages, gross tons)

Gross Exports and Net Exports (After Deducting Imports) of Iron and Steel
(Monthly Averages in Thousands of Gross Tons)

Exports From	United States		Great Britain		France		Belgium and Luxemburg ^c		Germany ^a		Total	
	Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net
1913.....	242.3	221.3	414.1	228.2	51.6	37.8	129.2	84.3	517.3	492.8	1354.5	1035.5
1920.....	392.4	369.9	270.9	178.5	77.4	(12.4*)	76.7	6.7	143.6	117.4	941.0	459.1
1921 ^b	181.0	174.0	141.4	4.3	123.8	92.5	75.6	22.3	(^b)	(^b)	531.8	303.1
1922.....	161.5	114.9	283.4	209.9	141.4	98.1	175.9	128.2	399.7	274.4	991.9	608.5
1923 ^c	162.1	112.5	360.0	249.8	181.9	123.4	207.9	144.2	188.9	(36.4*)	1020.5	615.2
1924 ^c	142.6	101.0	321.1	118.7	231.1	174.0	282.2	235.4	128.0	(27.6*)	1105.0	602.1
1925.....	140.4	70.2	310.9	84.2	321.7	207.6	261.9	217.4	267.6	169.2	1302.5	848.6
1926 ^d	180.7	70.6	313.0	51.3	350.0	330.0	276.0	217.0	402.0	334.9	1521.7	993.9

^a Deficit (minus).

^b Luxemburg included with Germany in 1913.

^c No data for Germany in 1921.

^d German returns incomplete because of Ruhr occupation.

^e April.

set by an increase of 27,000 tons in the monthly export surplus of India and, in the second place, the tonnage is all but insignificant when included in such figures as 1,035,500 tons monthly which represents the average for both iron and steel in 1913. Of itself, however, the marked decline in the net exports of pig iron, even after allowing for the new tonnage from India, is well worthy of note because it proves that consumption of pig iron in neutral countries has dropped off very much faster than that for steel.

Sharp Struggle for Neutral Markets

The essential fact, which is clearly indicated both by the net exports as shown in the accompanying table and by the production figures, is that the consumption of iron and steel and of steel alone is less in export markets now than it was 12 years ago. European steel making capacity has been increased greatly since 1913 but this shrinkage in demand stands squarely in the way of finding an early outlet for these potentially larger supplies either in South America or in the Orient. Here also is the explanation for the keen competition which has kept foreign prices down and which makes certain European steel makers so eager to form international cartels that will regulate both production and prices.

Manifestly the "world hunger" for steel of which so

much was heard a few years ago has still failed to materialize. If it exists at all, it lacks the means to make the demand effective.

Quite probably, neutral markets will require more steel as the regions themselves become more and more industrialized; but as yet there is no statistical evidence of an accumulated shortage despite the short rations available during and immediately after the Great War. American exporters, like their European competitors, must face this condition.

Europe Greatly Needs to Increase Exports Now

In order to complete the picture, however, we must realize that the slow growth of their export market is a far more serious problem for foreign steel industries than it is for our own. They are so much more dependent upon export sales. In France, Germany, and Great Britain, plant capacity is in each instance fully double that warranted by local consumption, and in the Belgo-Luxemburg Customs Union it is roughly three times home needs. Even though their domestic markets improve at a much faster rate than they seem to be doing now, European industries would still have to export 50 to 75 per cent of their output in order to maintain full production schedules. But it is difficult to see how this can be done.

EQUIPMENT MAKERS MERGE

Aetna Foundry & Machine Co. and Standard Engineering Co. Are Consolidated

TWO leading manufacturers of steel mill equipment, the Aetna Foundry & Machine Co., Warren, Ohio, and the Standard Engineering Co., Ellwood City, Pa., have been merged into the Aetna-Standard Engineering Co. The consolidation was made possible through the acquisition by the Aetna company of the interest of John W. Hubbard in the Standard Engineering Co. Except for the retirement of Mr. Hubbard, the merger means little change in the official personnel. Active officers of both component companies will be officers in the new organization. M. I. Arms, who has been president of the Aetna company, becomes president and treasurer of the new company. R. C. Stiefel, who has been identified with the Standard company, will be a vice-president, as will R. J. Wean, who has been active in the affairs of the Aetna company. J. R. Paisley has been elected secretary and I. S. Taylor assistant treasurer and assistant secretary.

The products of the component companies are complementary. The Aetna unit has been active in the design and manufacture of sheet and tin mill equipment. For sheet mills its products include automatic mechanical doublers, steam doublers, squaring shears, roller levelers, hydraulic stretcher levelers, annealing box charging machines, pickling machines, automatic sheet piling machines, Lee top-roll drives for roughing mills, galvanizing machines, cooling wheels, longterne units, drying and scrubbing machines, and cleaning and oiling machines. To tin mills it offers automatic tin pot feeders, tinning equipment, tin pots, cleaning and polishing machines, automatic mechanical doublers, doubling shears, annealing box charging machines, annealing box straighteners, squaring machines with or without "handover" attachment and Grey-type pickling machines.

The Standard Engineering Co. has been prominent in the design and manufacture of heavier mill equipment, including seamless tube mills, lap and butt-weld pipe mills, bar and sheet mills, cold-drawing machinery, shears, roll lathes, sand-cast and chilled iron rolls, and Wieland pipe-threading machinery.

Both units of the new company have grown rapidly in recent years. In the past five years the Aetna Foundry & Machine Co. has increased its capacity more

than 400 per cent. The Aetna-Standard Engineering Co. will have invested capital stock of more than \$2,000,000. Based on the records of the components of the merger, the business of the new company is expected to total \$3,000,000 to \$4,000,000 annually.

Wholesale Prices Drop Again

Prices of wholesale commodities reported by the United States Department of Labor show a level of 149.7 in August, based on 100 as the average of 1913. This is a drop from the 150.5 of September. Except for the 149.2 of August, it is the lowest figure since September, 1924. The four months, July to October, inclusive, have shown an average of almost precisely 150.

Metals and metal products continue to hold the lowest position among the eight major groups of commodities. The October figure was 126.7, compared with 127 in September and with 127.9 in October last year. The metals have been consistently lower than the average price for more than five years. During the greater portion of that period they have been lowest of all major items. Fuels at 184.4, building materials at 172.1 and clothing materials at 171.5 continue to register the highest prices of any groups.

Large Imports of Spiegeleisen This Year

Due to a scarcity of domestic spiegeleisen during a large part of this year, imports have been exceedingly heavy. For the first nine months of 1926, 6908 tons of spiegeleisen has been imported, some of it being made in England and some in Germany. The largest importations were in April at 1880 tons, with February credited with 1620 tons. Receipts were 300 tons in March, 275 tons in September and 100 tons in May. The total importations during the calendar year of 1925 amounted to only 1094 tons, so that the receipts to Oct. 1 this year are over six times as much.

Members of the Cleveland Engineering Society, Cleveland, will spend Nov. 19 in Pittsburgh, where they will make an inspection trip to several plants. In the evening the visitors will join in supper with the Engineers Society of Western Pennsylvania at the William Penn Hotel.

Rotary Machines for Carburizing

Greater Uniformity of Product Reported—Cost
Figures Given—Advantages from
Subsidiary Uses

BY F. S. O'NEIL*

OUR two plants at Indianapolis make chain—chain for nearly every purpose and from many different materials, principally malleable iron and steel. The old adage that "a chain is no stronger than its weakest link" is more than an adage to us—it is a burning motto. The weak link or the weak part of a link is the object of much research, testing, trials of different materials and methods, and a considerable item in the expense of manufacture.

We are always looking for the weak link, for the whole product, unlike most other manufactured articles, is condemned if only one part proves defective. Case hardening and heat treating play an important rôle. Even the annealing of malleable iron is closely related, so I am within bounds when I say we work in an atmosphere filled with the methods of changing different structures by the application of heat by some method or other.

To produce heat for our various processes, we use coal, coke, oil, electricity and gas. Coal and coke are confined to the malleable iron processes; the other three are used in our heat-treating departments. Each, we believe, has its definite sphere and it is our endeavor to use them in that way.

Wanted—Better Work at Less Cost

Several years ago we realized that our present heat-treating equipment was inadequate for our production and results were not the best. Two points stood out to guide us in the selection of new equipment and changes in methods: uniformity of product or the uniform results to be obtained, and the cost of doing it. We wanted more uniformity and a decidedly lower cost per pound—better work for less money.

The first step was to analyze present methods. All of our carburizing was done by the pack-hardening

method in muffle type furnaces fired with oil or gas. Some reheating was done in the earlier types of rotary gas furnaces. Cyaniding was used for a considerable tonnage of light section work. Alloy boxes were in use, so we were dealing with minimum box weight. The weight ratio ran 50 per cent box, 35 per cent work and 15 per cent compound, as an average. What were we doing with every charge? One-half of our heated charge was only a medium to handle the work and compound. The boxes were heated up and, when the charge was dumped, set aside to cool. One-half of the heat was wasted and furnace time at least doubled.

Follow on through to the indirect expense; the cost of the boxes; the variety of boxes for different sizes of work; the labor and space required to pack the boxes; the storage and preparation of the compound; the half-time work of the furnace operators; the upkeep of the furnace; all items of heavy expense which will be touched upon again later.

Rush Work Spoils Quality

Uniform results can be obtained by this method, but it is slow, expensive and exasperating. And we all know the human element, when production is pushing: Bring the furnace to heat as quickly as possible and get the work out. This spoils uniform results. The outside rows of boxes heat up first, the material nearest the outside of the boxes gets up to temperature before the center, the ends of long pieces in the center of the box are subjected to a longer period of penetration than the center section. So we have really a different degree of heat application from the outside of the furnace to the center, and from the outside of the box to its center; consequently a different degree of penetration.

The waste of heat leads to the use of the cheapest fuel, which is oil. Gas, while presenting greater ease of control, was too expensive, due to inefficient application. The question of a more direct and uniform ap-



Battery of Four American Gas Furnace Co. 600-Lb. Capacity Rotary Retort Carburizing Machines at the Link Belt Co., Indianapolis, Ind. These machines are carburizing and heat treating work at the rate of 213 tons per month, and at a cost of \$27.50 per ton for both operations

plication of the heat arose. Our investigations led us to the rotary type carburizing furnace as the nearest approach to the ideal condition. Our tonnage in the aggregate is large, but broken up into a variety of different parts, which made batch treatment the only method to follow. As the gas supply came from by-product ovens, the carburizing agent had to be a compound.

Gas-Fired Rotary Furnaces

Rotary carburizing furnaces were installed, gas mains put in and the other equipment necessary, such as meters, pumps, tanks, baskets and circulating system. Now let us compare, step by step, the difference between the muffle furnace with its boxes and the rotary furnace, to do the same job. The revolving retort replaces the boxes—once heated, it is not allowed to cool between charges. There is no 50 per cent excess material heated.

For different classes of work, various sizes of furnaces might be more economical, but the principle is the same. The labor comparable with packing boxes is to shovel the parts in, a ratio of perhaps 1 to 75. The handling of the compound is usually with a shovel. The cost of the retort per pound of product is about a stand-off as compared with boxes, but the investment tied up at any one time is about one-fifth—an item in these days of changed ideas regarding output per dollar of capital invested in equipment.

Next, a comparison for uniformity. The retort is heated evenly as it revolves and the material inside turns over and is exposed on all sides, the whole charge coming up to temperature at the same time. This permits the absorption of the compound to begin at the same time and at the same rate, giving a uniform depth of case and a uniform heat throughout the core. In addition, a pressure is set up inside the retort by the carbonaceous gases released from the compound, which hastens the penetration.

Arrangement for Quenching

The character of our work permitted us to install the largest size rotary carburizing machine. The machines are arranged in a row, on the floor, with a water tank and an oil tank for each furnace, set in a continu-

ous concrete pit. The pit has a steel-angle ledge around it which serves a double purpose. It keeps dirt from getting into the tanks and acts as a track for the moving spout used in discharging the furnaces. The capacity of the tanks is 850 gal., an excess over the quantity needed, but very handy.

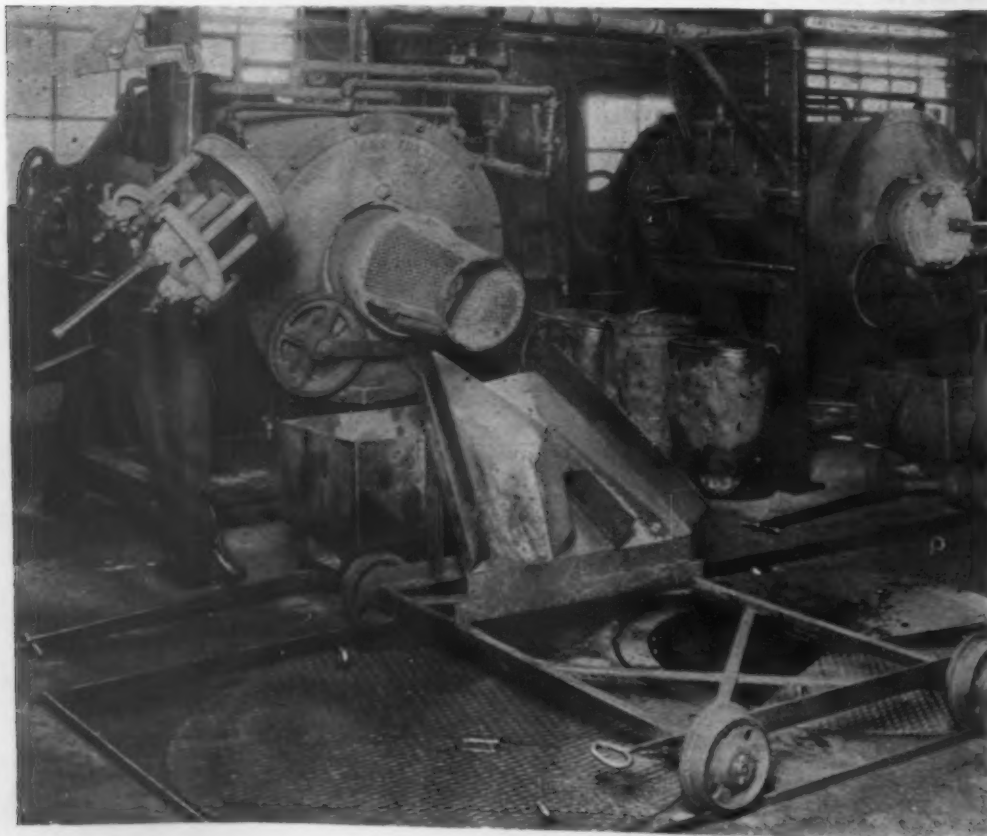
Each tank is equipped with inlet and outlet. The water is kept to the proper temperature by overflow, while the oil is pumped through a cooling system. Each tank also has a quenching basket, properly baffled to the bottom, where it ends in a wire basket form, with a hinged door. The material is discharged from the baskets, after raising from the tanks by an overhead crane, into tote barrels, by opening the hinged door. The top of the basket is made of diamond top plate with a hinged door cut in it, and becomes the top of the tank when the basket is in the tank.

In operating the furnaces, we shovel the material into the retort, approximately 500 lb. per charge. The required amount of compound is also placed in the furnace at this time. We have placed at the side of each furnace a small jib crane which handles very nicely the retort plug. In discharging the furnace, a conical screen, which fits over the end of the retort, is used to screen out the compound. The work flows from this screen into a two-way moving chute, which passes it either into the oil or the water quench. The hot compound falls from the screen into iron boxes mounted on wheels, which permits moving from one furnace to another and out into the yard to cool.

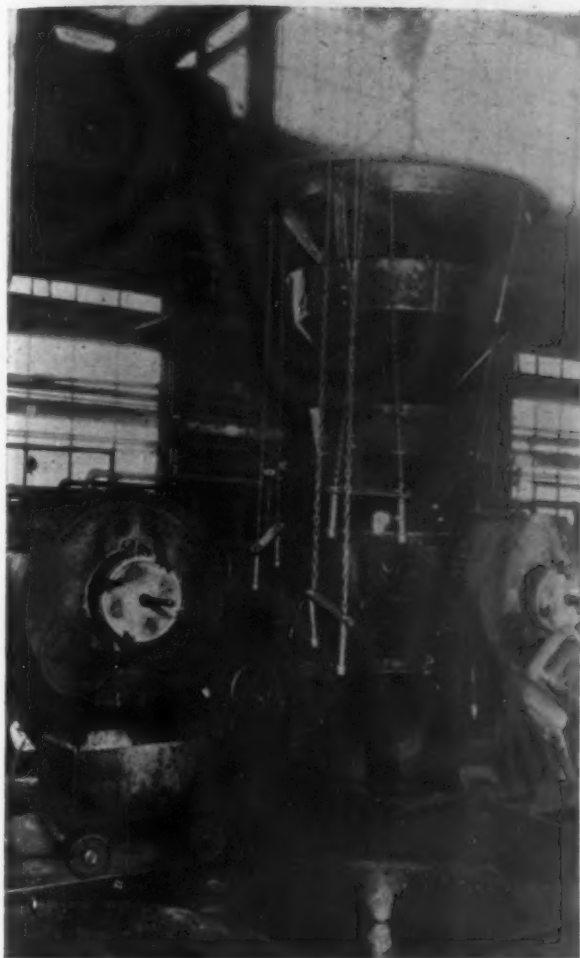
Subsidiary Uses Confer Benefits

The use of these furnaces is not confined to carburizing. They can be used economically for heat-treating and for reheating, and are being so used every day. They make ideal annealing furnaces, if they can be spared long enough, and it is our practice to load them up late on Saturday and anneal over Sunday. In addition to getting this operation, we save the life of the furnace by not letting it cool down, and are ready with a furnace nearly up to heat on Monday morning. Throughout the week, the operation of the department is continuous.

Uniformity of product has been accomplished and, possibly best of all, from the manager's viewpoint, ac-



Rotary Retort Carburizing Machine Showing Screen for Sifting Compound from the Work. This shows also the discharge chute with double arrangement, for discharging work either into the oil quenching tank or into the water quench



Baffles and Basket Which Fit into the Quenching Tank. Extremely uniform quench is secured with this equipment

complished with a considerable saving from previous methods.

Cost of Operation

All our heat treating is done on a tonnage or pound basis, broken up into three groups: case hardening, heat treating and annealing. A flat price is allowed for each and the total expense of operating the department is set up against the revenue derived from these three classes of work. The department either shows a gain, an even break, or a loss, on its factors; and included in these factors are the cleaning operations.

Over a period of time, a composite factor is derived which becomes a general guide for operations. The expense of the department includes many items: rental of floor space, light, heat, power, maintenance, machine depreciation, cost of retorts, gas compound, fixtures and appliances, labor and supervision, and the general administrative expense.

Using the maximum time necessary on any of our material, the detailed figures per 500-lb. charge would be about as follows:

Gas	\$1.651
Compound	0.295
Labor	1.700
Quench oil	0.218
Machine expense	1.600
Overhead factor	40 per cent

This would give a cost of 1.456c. per lb. for single treatment; for a re-heat and draw, to relieve any gripping strains of the case, 0.6c. per lb., or a total cost of 2.05c. per lb. for case hardening.

Average gas consumption is around 450 to 475 cu. ft. per hr. The gas rate is \$1.15 per 1000 cu. ft., with a sliding scale for quantity consumption and a discount for prompt payment, which brings the price of gas between 87c. and 90c. The composite factor for all three classes has averaged, over the last six months, \$27.50 per ton, or less than 1.5c. per lb.

The savings effected by the new installation, compared with the old methods, has been material and the certainty of a uniform treatment has lessened our worries to a great extent. Complaints are much less frequent and the elimination of any element of doubt in a customer's mind, regarding the product, cannot be estimated in dollars and cents.

Healthy Building Conditions Reported

In its semi-annual national survey of construction conditions the American Construction Council reports healthy activity in the building industry generally. The volume of operations points toward as great a total for the year as for 1925, although there has been a slight seasonal recession and the situation is somewhat spotted in various parts of the country. The amount of work scheduled and contemplated for winter operations is favorable.

The character of operations is of a much more substantial type than that of the past few years, showing an increased demand for better built and properly financed buildings, which the American Construction Council has been advocating so strenuously since the setting in of the building boom in 1922. This is by far the healthiest situation that has existed in the building industry for some years, as there has been a noticeable recession in new speculative building not backed up by adequate values, and a better class of business is coming upon the market.

More Business Building

Slowing down in housing construction further reflects a favorable trend, with an increasing demand for a higher class of apartments and hotels and of suburban homes, the need for which the council emphasized during the peak period of indiscriminate house building. Building operations in general show a larger percentage of structures for commercial and industrial purposes, public buildings and public utilities. There is a better supply of rentable space of good quality.

Material prices and labor are reported fairly well stabilized, with no apparent indication of any radical change in the near future. Labor productivity is increasing.

Contracts for engineering construction show a substantial increase over the first ten months of last year, with equally favorable prospects as to proposed work.

Wages in Sheet and Tin Mills Unchanged

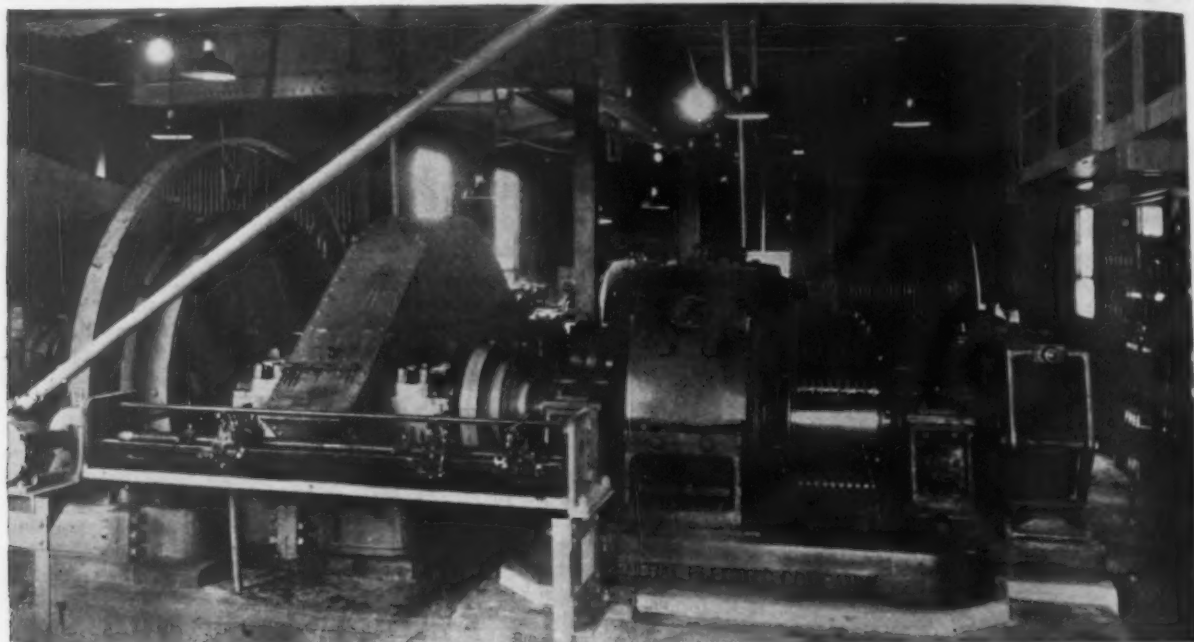
The bimonthly examination in Youngstown, Nov. 10, of the sales records of the sheet manufacturers signing the scale of the Amalgamated Association of Iron, Steel and Tin Workers again as for the July-August period, disclosed 3.25c. per lb. as the average sales price of Nos. 26, 27 and 28 gage black sheets for September and October. Consequently wages in the sheet and tin mills governed by these settlements will remain unchanged for the 60-day period beginning Nov. 1, at 33 per cent above the base rate. Elias Jenkins, new secretary Western Sheet and Tin Plate Manufacturers Association, and M. F. Tighe, president Amalgamated Association, conducted the settlement.

Record Autumn Employment in Illinois

A survey of employment conditions issued this week by the Illinois State Labor Department, shows that the average weekly earnings of Illinois factory workers is higher than in any autumn period in the past five years and that more people are receiving wages in that State than in either 1924 or 1925. It is estimated that 27,000 more persons are in Illinois factories than at the same time last year and 46,000 more than in 1924.

The horsepower range of silent chain drives of the Link-Belt Co., Chicago, available from distributors' stocks, has been extended from 1/2 to 10 hp. in reductions from 1 to 1 up to 7 to 1, up to 15 hp.

The Cradle Hoist Drive of the 120-ton Capacity Car Dumper Built by the Wellman-Seaver-Morgan Co. for the New York Central Lines at Toledo Has a Limit Switch with Differential Connection to "Girder Screw"



Balanced Cradle in Car Dumper

Electrical and Largely Automatic Control Features Machine at Toledo for Handling 120-Ton Cars

A VIEW of the electric car dumper installed on the docks of the New York Central Railroad at Toledo, Ohio, for handling cars of no less than 120 tons capacity was given on page 1222 of THE IRON AGE of Oct. 28. From A. F. Case, manager of the ore and coal division of the Wellman-Seaver-Morgan Co., Cleveland, which erected the dumper, some facts of the unusual character of the dumper have been obtained. What Mr. Case had to say was in part substantially as follows:

The Toledo car dumper is designed to handle all sizes of open top railroad cars, ranging in size to 120 tons in capacity, at a rate of 40 cars per hour. Essentially the car dumper consists of a main supporting structure carrying a lifting cradle, a pan girder, an adjustable pan into which the coal is dumped from the railroad car; a telescope chute at the outer end of the pan, through which the coal passes from the pan into the hold of a ship; the machinery units for the different operations, and the sub-station units.

The car tracks in the cradle are elevated about 25 ft. above the dock and cars are entered into the dumper by means of a mule, which is operated by a haulage cable and pushes the cars up a 12 per cent approach grade leading from the dock level to the elevated position of the cradle. The mule travels on a narrow gage track between the rails of the standard gage track over which the railroad cars travel up the approach. At a suitable point in the approach a by-pass gate is installed and a depressed narrow gage track is provided so that the mule in returning down grade may travel under a car standing at the bottom of the grade. When the mule is started to push the loaded car up the grade, it passes over another by-pass gate back of the loaded car and runs on a track at the same elevation as the car track. A push bar on the mule engages the back coupler of the car, pushing it up the grade into the cradle of the dumper.

The main structure of the machine is approximately 108 ft. high, the front and back columns are 36 ft. center to center and the front columns are 70 ft. centers, giving a dumping clearance of 64 ft. The platen rails are 25 ft. above the foundation. The pan is

approximately 64 ft. long at the inner end and contracts to about 5 ft. at the discharge end. The inclined length of the pan from the girder hinge to the chute hinge is 43 ft. The pan girder has a vertical range of 24 ft. from the lowest to the highest position. The telescope chute when contracted is 13 ft. below the chute hinge and can be extended to 28 ft.

Departing from previous construction the pan girder is designed to travel on the front face of the front column. The adjusting screws are carried on brackets on the face of these columns where any danger of damage from car interference is eliminated.

Another feature is the over counterbalancing of the cradle. This is so arranged that the necessary power required to hoist a loaded car is practically the same as the power required to pull the cradle and empty car down after dumping. This has the effect of greatly reducing the power required for the cradle operation and effectively reducing the peak loads which occur during the cycle.

Two drums are used for the cradle hoist ropes and these ropes are so arranged that each drum has ropes leading to both ends of the cradle. In case a drum shaft or gear should fail the cradle cannot fall as it would be held by ropes to the other drum.

Due to the accuracy of electric control and the introduction of automatic features, two operators suffice to run the machine. One is located at an elevated station on the main column and the other at the outer end of the pan over the boat. The first controls all of the operations of the mule and cradle while the second operates the chute and pan.

The hoisting mechanism for operating the cradle consists of two heavy cast steel drums geared to a single pinion on an intermediate shaft between the drums. The pinion shaft is extended to take the motor gear which is of double helical type and meshes with two motor pinions, which are connected to the hoist motors by flexible couplings. The intermediate shaft is provided with a manually operated emergency brake

(Concluded on page 1452)

German Steel Wage Rates Low

Department of Labor Survey Shows That American Workers Receive from 98 to 283 Per Cent More—
Working Conditions Much Different in Germany

WASHINGTON, Nov. 16.—Wages paid in the German iron and steel industry average from 25 to 50 per cent of those paid in the American industry. This is shown by a study made by J. C. Bowen, chief statistician, Bureau of Labor Statistics, Department of Labor. It is the second and final survey made by Mr. Bowen regarding the iron and steel industry abroad.

The first survey, concerning wages paid in the British iron and steel industry, covered the situation in that country in greater detail than ever before and the study concerning wages and hours in the iron and steel industry of the western district in the German industry also is the first detailed compilation of the kind ever made. It has just been published in complete form by the department. The report on British wages was published in THE IRON AGE of Oct. 14, 1926, pages 1074 to 1076.

Because of physical differences concerning the character of the equipment in the German industry and the American industry, wage bases and actual nomenclature of German workers as compared with those in the United States, comparison of wages in the chief countries is somewhat difficult. However, occupations in prominent departments of the iron and steel industry for the two countries have been selected from the present report concerning the maximum German wages and the report of the department regarding average wages paid in the American iron and steel industry in the spring of 1926 and what is believed to be a fair comparison has been arrived at.

German Plants on 10-Hr. Basis

While virtually all of the American workers in the iron and steel industry are on an 8-hr. basis, most of those in the German industry are on a 10-hr. basis, except as to the blast furnace department. For this reason the figures given to show American wages are based on a theoretical 10-hr. day with the exception of the blast furnace department, with the following result:

	German (Maximum Wage)	American (Average Wage)	Per Cent of American Wage Over German
Blast Furnace			
Blower	\$2.33	\$7.21	209
Keeper	2.07	4.61	123
Blooming Mill			
Roller	3.99	14.98	275
Shearman	2.12	8.12	283
Laborer	2.27	4.51	99
Plate Mill			
Roller	3.71	13.64	266
Shearman	2.98	7.83	163
Bar Mill			
Roller	5.52	17.00	208
Heater	4.57	9.54	109
Laborers	2.07	4.11	98

The report on wages paid in the western district of Germany is considered to be especially timely in view of the rapid gain the German industry is making in the world's markets and the increasing imports of iron and steel from Germany into the United States. German competition has been the source of inquiries conducted by the Treasury Department at the request of American manufacturers with regard to alleged dumping and also a recently concluded investigation made by a German-American commission, which reported that no bounties are paid on exports of rolling mill products and pig iron from Germany.

Wide Wage Range Between Districts

One of the outstanding features of wage data filed by Mr. Bowen showing wages paid in the western district in the German steel industry are the wide ranges in the daily earnings as between different localities.

The table here prepared takes the highest German western district wages so as to avoid emphasizing the difference in wages paid in the German and American industries.

The differences shown in the German localities are due to agreements which take into consideration the cost of living. Hourly earnings are also affected by appliance and equipment and by the varied success of the workers in obtaining favorable piece rates in the different establishments. The study includes blast furnaces, open-hearth furnaces, rolling mills and foundries. No data are given for tin plate or puddling mills because there are no mills of either type in the western district of Germany. Also there are but two regular Bessemer plants in the western district and neither was in operation at the time of the visit of Mr. Bowen. The Thomas blast furnaces are similar to the Bessemer converter. In Germany as in other countries the Bessemer process, Mr. Bowen points out, is rapidly going out of use, a larger percentage of steel being made by the open-hearth process.

Relief Periods Provided for Workers

At the time of the study, April, 1926, it was estimated that only 40 per cent of the iron and steel workers in the western district of Germany were employed full time, 40 per cent were working only part time, and 20 per cent were out of work altogether. The blast furnaces are on the 8-hr. basis and in the steel mills, except where noted, there is 10 hr. of actual work per shift but the process continues for 12 hr. except on Saturday. The work is so planned that each worker is relieved from work half an hour morning and afternoon, and one hour near midday, the process being slowed down, or employees "doubling up" on the work or a spare hand being brought in. Usually, however, the worker so relieved is required to stay in the plant and within call during the full 12 hr. On Saturday only one shift is worked, the men being on duty 8 hr. without relief. Thus, for the day-shift, Mr. Bowen states, the weekly hours of work are 58, but 68 hr. are spent at the plant. The other shift works the full 68 hr. per week with an attendance of 72 hr. There is a shutdown of 28 hr. over the week end. Work is resumed Sunday night. The practice of relief applies to the night shift as well.

Nearly all wage earners in the metal industries of Germany are members of labor organizations and practically all of the work done by them is covered by agreement between employers and the union, Mr. Bowen points out. The German organization of metal workers covers the workers in all industries, from blast furnaces and steel workers to remanufacture in foundries and machine shops, tool factories, cutlery factories, etc., and even work in precious metals. In the iron and steel industry the wage agreements cover general districts and subsidiary agreements cover separate localities.

The broad basic agreement covering the iron and steel industry in the northwestern district, generally spoken of as the Ruhr district, which the department will publish in full, shows that, although provision is made for the establishment of wage rates, no specific wage rates are given. Some of the local agreements contain basic time rates of the localities. Other local agreements show, by occupations, the basic time rates within the several branches of the industry. The rates so given, however, relate to time workers, while about 85 per cent of the workers are on tonnage or other piece rates. These basic time rates are lower than piecework earnings.

In Germany, piece workers work at so-called "accord" rates; that is, piece rates arrived at by accord agreements and established in each plant govern the work done there. Mr. Bowen explains that the whole system of wage rates in Germany is very puzzling to an American. For instance, as shown by the agreement for the Bochum district, all iron and steel workers in the district are, for wage purposes, divided into six purposes groups, including unskilled and transport workers; semi-skilled workers; semi-skilled trained workers; skilled trained workers; better skilled trained workers; and special skilled trained workers. All of the occupations within each group are, theoretically, at least, of equal wage value. This collective grouping of wage earners seems to be the outgrowth of the new labor conditions that have arisen in Germany since the war. Within the group the wage rate is determined by the age of the worker without regard to his ability, provided he is employed in one of the occupations covered by the group. The workers included in group 1 are all time workers and receive the rates stated. In the other groups workers over 21 years of age have a nominal time rate per hour, but since, as pointed out, about 85 per cent are piece workers, the time rate has little significance except in the case of those not yet 21, most of whom are time workers. The question, then, is to arrive at piece work rates and earnings.

If a man over 21 does piecework and produces as much as he did at the time rate he will earn 15 per cent more; that is, his daily time rate for piecework is 15 per cent above the rate for time work. The same man with a time rate of 18.6c. per hour has a basic piece rate of 21.3c., the money conversion into United States currency being made at the par rate of 23.8c. per gold mark and 0.238c. per pfennig. This advance of 15 per cent is given to make piecework more acceptable.

No mention is made in any of the agreements shown of this additional 15 per cent but it was specified in the previous agreement with the district and still is accepted by common consent. Individual piece rates are worked out in conferences between the employer and

workers' council. By negotiation, a piece rate is agreed on that will enable the worker to be entitled, for example, to 18.6c. per hr. to make 21.3c. per hr. at piece rates, which is an ordinary speed. Piece rates may be determined from the man's production on a time rate over a certain period or may be based upon piece rates previously determined for others.

Frequent Modification of Agreements

These agreements are constantly being negotiated and, when changes are made in equipment, process, or product, all agreements affected thereby must be modified. Agreements, when reached, are recorded by the workers' council, but only in very important cases do records go to the local union office.

The semi-skilled labor in group 2, entitled to 13.8c. per hr. for time work, has a basic hourly rate for piece work of 15.9c., but on piecework he actually earns on an average from 16.2c. to 17.1c. per hr. The semi-skilled trained workers in group 3 have a time rate of 14.8c. per hr., an accord basis of 17c. and actually earn from 17.4c. to 17.9c. per hr. The skilled trained workers in group 4 have a time rate of 16.7c., an accord rate of 19.2c. and actually earn from 19.2c. to 20.5c. per hr. In group 5, that of better skilled trained workers, there is a time rate of 17.6c. for men over 21, an accord base rate of 21.3c. and actual earnings of from 21.4c. to 22.6c. per hr.

Group 6 has a time rate of 18.6c., an accord rate of 21.3c. and earnings of from 22.2c. to 25c. per hr. Men of the wage figures quoted or referred to include family allowances paid to married men in addition to their regular wages. When the employee has a wife he is paid 0.238c. per hour, and 0.476c. more per hour for each child under 14. Married men are protected by law against dismissal because of this additional wage and it is stated that this law is very generally obeyed. From the wages of the workers, deductions are made to cover taxes and sickness, accidents and unemployment insurance. Taxes take from 5 to 10 per cent of the wages, depending on the income and the family dependent on the worker.

British Iron and Steel Output Continues Small

LONDON, ENGLAND, (By Cable) Nov. 12.—October production of pig iron was only 13,100 gross tons and steel production 92,900 tons.

The production since the coal strike started in May, compared with other periods, has been as follows in gross tons:

1925	Pig Iron	Steel
Per month	519,700	616,400
1926		
April	529,100	661,000
May	88,800	45,700
June	41,800	34,500
July	17,900	32,100
August	13,600	52,100
September	12,500	95,700
October	13,100	92,900

The October pig iron output was next to the smallest since the strike with the steel production next to the largest.

Czechoslovak Machinery Importers Unite

Czechoslovak dealers in machinery, according to the local press, are now organizing a special section of the Central Merchants' Association of Czechoslovakia with a view of protecting the interests of machinery dealers at times when commercial treaties are in process of negotiation by the Government, or other measures affecting machinery imports are under consideration, says Consul General C. S. Winans, Prague, in a report made public by the Department of Commerce. As a large proportion of the machines and machine parts imported by Czechoslovakia are received from export houses in Berlin and Vienna, the Czechoslovak merchants, it is reported, will endeavor to bring about the direct importation of machinery, or at least to restrict the re-exportation from other countries.

Wood Screw Manufacturers Combine for Export Trade

The Export Screw Association of the United States, 101 Park Avenue, New York, has filed papers under the Export Trade Act (Webb-Pomerene law) with the Federal Trade Commission, for the purpose of exporting wood screws. The officers of the association are: H. B. Plumb, chairman; Louis C. Parker, vice-chairman; A. Ribadeneyra, treasurer; S. Foster Hunt, secretary. Members are: American Screw Co., Providence, R. I.; American Hardware Corporation, New Britain, Conn.; Bridgeport Screw Co., Bridgeport, Conn.; Charles Parker Co., Meriden, Conn.; Eagle Lock Co., Terryville, Conn.

Import Rates from Gulf Ports Reaffirmed

WASHINGTON, Nov. 16.—In a decision announced last week the Interstate Commerce Commission reaffirmed its original findings concerning rates on iron and steel products imported through Gulf ports to interstate destinations. The case had been reopened on petitions filed by various iron and steel interests located in Kansas City, Mo.-Kan., and other points, as well as civic organizations. The new rates become operative Nov. 19.

Property of the McKeefrey Iron Co., Leetonia, Ohio, will be sold at public sale on Dec. 1, to satisfy a judgment which was entered in common pleas court recently against the McKeefrey company in favor of the Peoples Savings & Trust Co., Pittsburgh. Included in the sale will be the blast furnace, casting house, machinery, rights of way, trestles and switches, all equipment and three tracts of land.

INTERRUPTER SEAM WELDER

Periodic Interruptions of Current Claimed to Provide Conditions for Sound Welds

An electric seam welder arranged so that there is periodic interruption of the current without interruption in the travel of the welding rollers, which arrangement is claimed to preserve the uniform conditions necessary to sound and leak-proof welds and also to permit of a high rate of welding speed, is shown in the accompanying illustrations.

This machine, which is being marketed by the Gibb Welding Machines Co., Bay City, Mich., was developed from a similar unit of German manufacture. The German machine employed the so-called "roll-step" method, in which the work passed between rolls in a step-like manner, and current was applied only at the rest period. It is claimed that this method eliminated the accumulation of heat, and resulted in uniformly strong, leak-proof welds and practically no scrap. The production obtainable, however, was only 3 ft. per min.

The Gibb company marketed this German machine in this country until its own engineers developed the "dual-speed" method, which provided a slow speed during the welds and a fast speed between welds. This increased the speed of welding to 4½ ft. per min., at the same time retaining the quality of welds made on the previous machine. The dual speed was accomplished by means of an elliptical gear arrangement, but the whip of these gears was found to be hard on the bearings, especially at the higher speeds.

It is claimed that it was then found that periodic interruptions of the current without interruptions in travel preserved the uniform conditions necessary to sound and leak-proof welds and that a welding speed of 9 ft. per min. on 18 gage material was obtainable. Much higher speeds could be obtained on lighter gage. The surges of current, it is stated, had the penetrating effect without accumulating heat.

The machine includes a transformer housed in the base. The secondary of the transformer is made up of laminated copper sheets which are connected to the upper welding arm at the head and to the lower welding arm at the base. The lower welding arm is of copper. It is necessary to water cool both the upper and lower welding wheels to provide against the effects of the accumulation of heat. The upper welding wheel is driven directly by means of a ½-hp. motor; the lower welding roll is an idler.

Interruption of current is accomplished by means of an eccentric driven by the ½-hp. motor that drives the welding wheel. The eccentric is connected with 2-in. copper points, which are inclosed in a reservoir of running water to limit the amount of arc with the make and break of the current. These contact points are connected directly to the primary line.

Many varieties of this machine have been built to suit different types of work. As an example of adapt-

ing the machine to the particular job, the company gives the following:

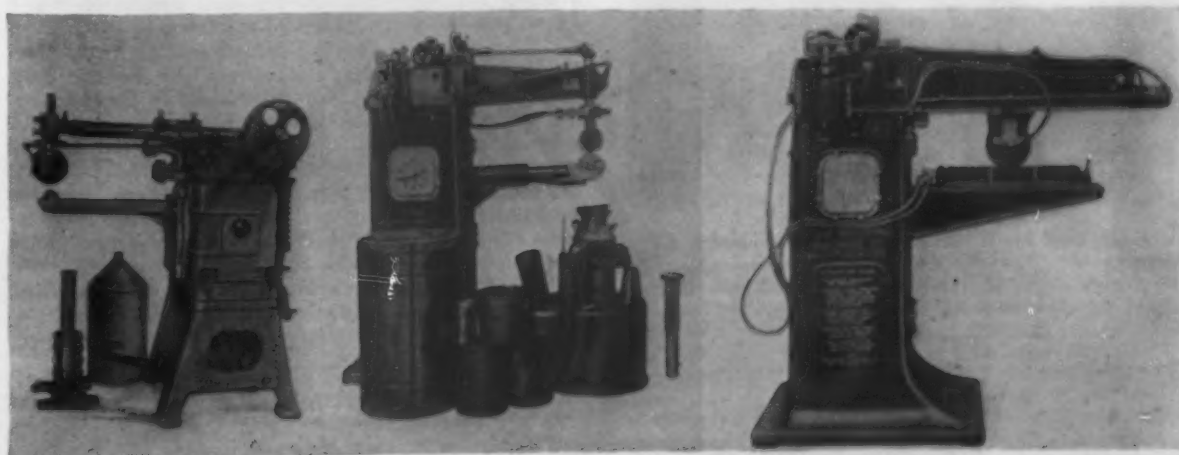
"One manufacturer wished to weld a cylinder 2½ in. in diameter and 22 in. in length. It was impossible to water cool the small roll required to weld a cylinder having this small diameter. In order to maintain a cool lower roller and lower arm, a trough was made so that running water could cover the lower roll and arm; the level of the water being held at a height immediately above the lower roll. The welding was therefore done entirely under water. It was further found that it was unnecessary to guide the cylinders through the rolls because the equal distribution of the water pressure kept the cylinder in a straight line."

As to the capacities of the various machines in the matter of speed, the company comments as follows: "For various reasons it seems inadvisable to supply seam welders with a transformer capacity of more than 100 kva. The speed at which a machine with a 100 kva. transformer capacity might be safely operated is dependent upon the relation between the welding and loading time, the width of the lap, and the amount of pressure required.

"The transformer of such a machine would not heat up in the welding of 18 gage metal at a speed of 9 ft., with a lap of ¼ in. and with 150 lb. pressure with a ratio of 50 per cent welding and 50 per cent loading time. If any of these conditions were changed, it would be recommended that the speed change accordingly. Some installations have been made where the handling time has been cut as low as 5 per cent of the total time. This amounts to a short circuit of the transformer for 95 per cent of the time. The speed would have to be cut to compensate.

In regard to the heaviest metal which can be welded on the seam welder, it is stated that this has never been definitely established. "No. 14 gage metal," it is said, "has been successfully welded in production. From our knowledge of spot welders we know that regardless of the increase in transformer capacity and of the variation in the amount of pressure, heavier sections of sheet require a certain period of time for the sheet to absorb the heat. Therefore to seam weld the heavier sheet, the rate of speed would have to be cut materially, presenting problems in heating. The field for seam welders on sheet up to No. 14 gage is so large that development has not progressed very far in the welding of sheet of heavier than No. 14.

"It must not be assumed that good seam welding is impossible without the use of the 'roll-step,' 'dual speed' or 'interrupter' methods. The Gibb company has built machines where none of these methods have been used. The ordinary line voltage using the frequency of the line for interruptions has been successfully employed. By this method speeds of 60 ft. per min. have been obtained. The success of this method is dependent on perfectly clean stock. Owing to the difficulty of providing this ideal condition seam welding with the line current has not advanced to any great extent."



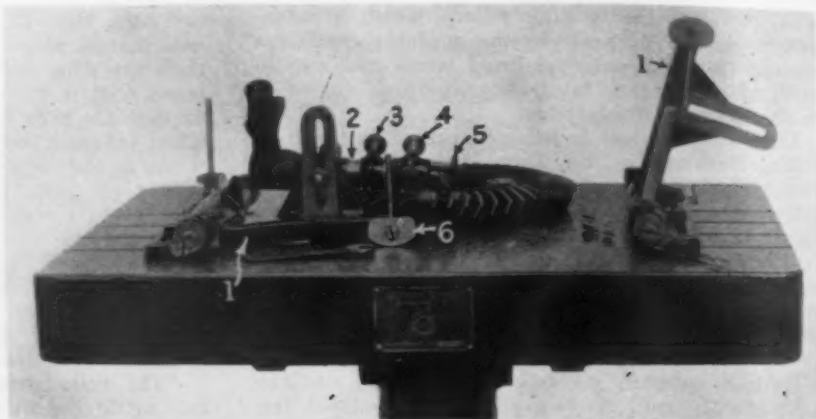
The Seam Welder With Step-by-Step Attachment Is Shown at the Left. The stationary roll-type of interrupter seam welder is at the center, and the traveling roll-type for seam welding cylinders of small diameter is at the right

Device for Checking Tooth Spacing of Gears

The Gleason Works, Rochester, N. Y., is marketing the testing device here shown, which was developed to permit of conveniently checking the accuracy of tooth spacing of gears of any type and of any size up to approximately 1 in. circular pitch.

In the illustration, two of the testers are shown mounted on a floor stand. The device employs an Optimeter optical device having a scale graduated to 0.00005 in. When observed through the eye piece of the instrument, these graduations appear about 1/16 in. apart, which permits of readily estimating readings considerably closer than 0.00005 in. The floor stand on which the testers are mounted is also built by the company. The top of the stand is a surface plate with T-slots to permit of bolting the testers in place.

Each tester is mounted on a hinged arm, 1, with a slotted extension on which the testing unit may be clamped in a position most convenient for the operator. The Optimeter is mounted on one end of the tube 2 as shown. On the opposite end of the tube are mounted holders 3 and 4, and a stationary finger is fastened to holder 3 and a movable finger to holder 4. The stationary finger serves as a stop against one side of a tooth of the gear being checked; the movable finger is brought in contact with the same side of the following tooth. The upper end of the movable finger makes contact with a rod that extends through the tube 2, and is connected at the far end to the Optimeter. Movement of this finger relative to stationary finger is therefore transmitted to the optical device.



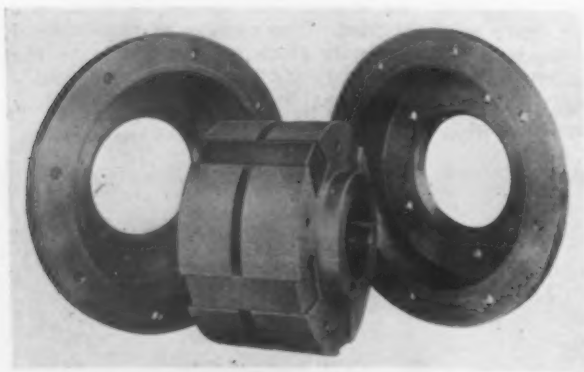
Tooth Spacing of Gears of Any Type May Be Checked. Two testers are mounted on the floor stand

Each tooth space of the gear is similarly checked and the deviation from the original reading noted. Between the checking of each successive tooth space, the handle of cam 6 is moved to a horizontal position, which raises the tester fingers from the gear teeth and permits indexing of the gear through a distance equal to one tooth space. Turning the cam handle to the upright position causes the fingers to drop again.

The table is provided with a taper hole to receive arbors on which gears may be mounted and tapped holes in the table permit of fastening blocks or disks around the bore of large gears to insure correct rotation of these gears. Special adapters are available for holding the shanks of certain types of pinions.

All-Metal Flexible Coupling

Simplicity and durability are features claimed for the new flexible coupling placed on the market recently by W. H. Nicholson & Co., Wilkes-Barre, Pa. The device is entirely of metal and is machined all over and balanced. It is self-contained and dustproof, and re-



Two Cast-Steel Hubs and Three to Five Floating Keys Comprise the Working Parts of the Coupling. The casing forms an oil reservoir and limits the lateral movement of the floating keys

quires only an occasional oiling. Twelve sizes, for shafts from 1/2 in. to 12 in., are available.

The coupling consists of two cast steel hubs which are keyed to their respective shafts and in which dove-tail slots are cut to receive floating steel keys, as shown in the illustration. The smaller couplings are equipped with three floating keys and the larger sizes with five. The hubs and the keys are inclosed in a cast-iron cas-

ing, made in two halves and bolted together with a gasket between. The casing is firmly secured to one hub, and in addition to serving as an oil reservoir and preventing the entrance of dust and dirt, it serves to limit the lateral movement of the floating keys in the slots.

Definite clearance between each floating key and slot in the hub permits an error of alinement between the two shafts equal to approximately twice this clearance. The amount varies with couplings of different size, but is said to be sufficient to compensate for practical misalignment.

It is stated that when in operation and connecting two shafts which are in misalignment, the keys have a slight rocking action during each revolution which distributes the wear evenly across the side surfaces of the floating keys. The pressure caused by centrifugal force maintains an oil film between the floating keys, thus preventing metal-to-metal contact in transmitting the load, and minimizing wear, besides assisting the coupling when lateral float is required. The floating keys are said to remain noiseless due to the fact that the centrifugal force keeps them thrown out into the dove-tail slots. Under torsional load sufficient to overcome the centrifugal force, the keys are forced down and drive on the bottom, or part way down the slots. It is claimed that regardless of how loose the floating keys are made, or wear after long service, the centrifugal force keeps them properly seated and quiet.

The number of hoists ordered in October decreased 28.5 per cent as compared with the previous month, and the value of such orders decreased 16.6 per cent, as compared with September, according to the Electric Hoist Manufacturers' Association. Shipments were 2.7 per cent less in October than they were in September, 1926.

Closed Yoke Riveter for Use On Automobile Chassis Frames

The driving of the vertical rivets in the upper flange of an automobile chassis frame side bar, rail or channel in the final assembling operation is the function of the closed-yoke riveter recently added to the line of the Hanna Engineering Works, 1765 Elston Avenue, Chicago.

The inner lower die or nose which swivels upon a vertical axis can be placed in various positions to avoid interference with the sides of cross members, brackets, etc., on the inside of the chassis frame. The die alignment is not affected by this swiveling as the vertical axis of rotation passes through the center of the die. This die is horn shaped to hook around the lower flange of the side bar channel and enter from the bottom and inside of the chassis frame into the throat of the channel bar below the upper flange. The outer upper jaw or nose rarely meets interference as it hooks over and outside the side-bar channel. During the riveting power stroke, which is vertical, the lower nose is stationary and the upper jaw moves, the length of the stroke being $1\frac{1}{2}$ in. in a straight line movement.

Since the outer jaw is designed to swing outward it is possible to insert and remove work with a very short die stroke. This swing movement is accompanied by air-actuated toggles. The opening and closing action is rapid, said to require less than a second in actual riveting procedure. The air valve and handle controlling the toggles, as shown in the accompanying illustration, are mounted on the side of the outer jaw head. The riveter is mounted upon a swivel base, allowing the entire apparatus to rotate upon a vertical axis. It may also be equipped with a trunnion stand base which supports the machine at the two bosses shown on the sides of the cylinder. This latter mounting allows the machine to tilt so that the die axis conforms to rivets in a chassis which is at an angle.

Movement of the riveting mechanism is controlled by a foot operated valve and the riveter may be operated as rapidly as 50 cycles per min. The machine is

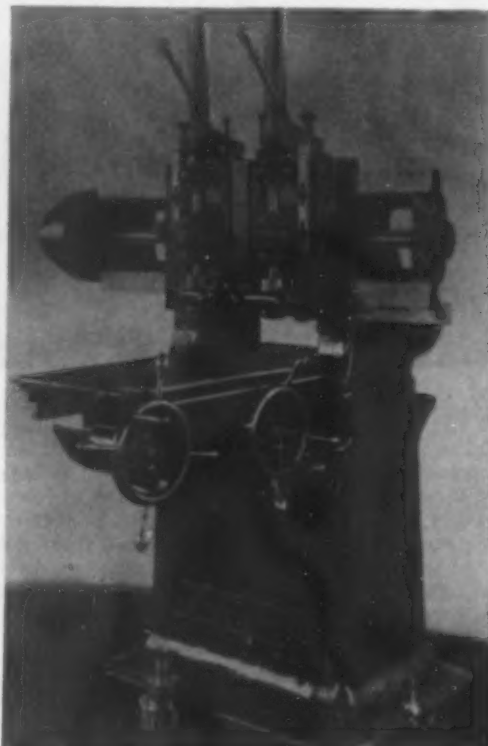


Closed-Yoke Riveter for Driving the Vertical Rivets in the Upper Flange of Automobile Chassis Frame Side Bar, Rail or Channel

made in 10-ton, 15-ton and 20-ton capacities for cold riveting $\frac{1}{4}$ -in., $\frac{5}{16}$ -in., and $\frac{3}{8}$ -in. rivets, respectively. Little or no anchorage is required for installation, and the floor space occupied is 22 by 22 in. with a height of 45 in.

Profiling Machine with Special Table

A modification of its No. 12 profiler with two gear-driven spindles, has been made available by the Pratt & Whitney Co., Hartford. This machine, changed over for a special purpose, is equipped with a longer and wider table which will accommodate much larger work than the standard machine. The location of the handwheels which control the table traverse and spindle head traverse respectively has also been changed, both of these controls having been brought around to the right-hand side of the machine where they are convenient for the operator. These changes are said to materially increase the range of the machine, adapt-



Special Features Include Increased Size of Table and More Convenient Location of Controls

ing it to a number of profiling jobs which are of light nature as regards cut and which require the extra amount of work surface.

As a whole, the design of the machine is the same as heretofore. The same spindle head and spindle ways are used with the two spindles driven through spiral gears from a horizontal driving shaft. Each spindle is equipped with a former pin holder and the necessary depth stops and controls. The new mechanism for traversing the spindle head consists of a handwheel geared to a shaft which extends through to the back of the machine. This shaft operates a gear reduction unit which is connected to the rack and pinion in the usual manner, except for the increased length of travel.

The new table measures $18\frac{1}{2}$ in. by 42 in. and has a travel of 40 in. The maximum height from the table top to the bottom of the cross slide is $5\frac{1}{4}$ in.

The fall meeting of the Illinois Manufacturers' Association will be held at the Missouri Athletic Club in St. Louis, Nov. 19. The list of speakers and their subjects follow: William Butterworth, president Deere & Co., Moline, Ill., and vice-president Chamber of Commerce of the United States, "The Value of Statistics in Business"; Charles Nagel, former Secretary of Commerce, St. Louis, "Making Our Laws More Effective"; E. A. Camman, manager system department, Peact, Marwick, Mitchell & Co., St. Louis, "Uses of Standard Costs."

Devises Novel Method of Exhibiting Counterbores and Other Tools

A novel method of exhibiting metal cutting tools, seen at the recent steel and machinery exposition at the Municipal Pier, Chicago, is shown in the photographic reproduction below.

These tools, manufactured by the Gairing Tool Co., Detroit, are (from right to left) counterbore, spot



facer, counterbore, core drill, back spot facer, counter-sink and combination core drill and reamer. They are mounted in a cross sectional pattern as shown, so that the specific operation for which each tool is intended may be seen. Each tool was arranged to revolve continuously, as in actual use, the tools being driven by motor through worm and worm gears and friction drive. Any of the tools could be stopped at will, examined and upon being released would continue revolving. Patents have been applied for.

Gasoline Locomotive for Individual Plant Switching

The Mid-West Locomotive Works, Cincinnati, recently held a public demonstration of its model 80GD 8-ton gasoline locomotive, designed for the use of shippers and receivers of carload freight who wish to do a part of their own switching. The locomotive is built for standard-gage track, is provided with automatic couplers, foot boards, handholds and safety equipment ordinarily found on railroad equipment. Fuel and labor expense are eliminated except during the time switching is being done, and the use of gasoline minimizes smoke and the fire hazard. The company has designed units of the same kind weighing 10 to 25 tons where heavier work is required, and these are equipped with air brakes if desired.

To Equip Trains with Timken Bearings

Roller bearings for 127 railroad cars for the Chicago, Milwaukee & St. Paul Railroad are to be provided by the Timken Roller Bearing Co. They will be used on the Pioneer Limited, running between Chicago and Minneapolis, and the Olympian, running from Chicago to Tacoma and Seattle. The equipment for the Olympian will consist of nine trains, one each day, each way. That for the Pioneer Limited will consist of three trains. The bearings for railroad service are of tapered design, which enables them to carry loads and shocks not only from above but also from the side thrust—an ever-present condition in railroad service, as there is a great deal of side motion from the flanges of the wheels contacting against the rails.

The decline in automobile manufacturing has been checked, and in a few instances production rates have been stepped up, says *Automotive Industries* this week.

To Put Second Electric Car Dumper on Great Lakes

The Pittsburgh & Conneaut Dock Co. is to electrify the steam driven car dumper at Conneaut, Ohio. This will be the second electrically operated dumper on the Lakes, the first being the T. & O. C. dumper recently completed at Toledo.

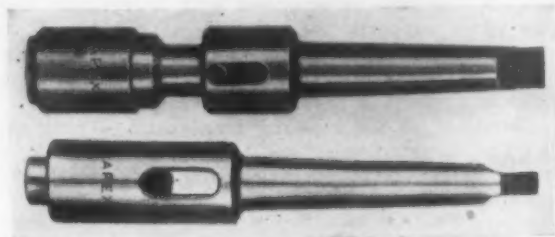
The dumper to be changed to the electric operation is a McMyler-Interstate machine unloading cars up to 100-tons capacity. With the change-over cars containing 70 tons of coal each will be dumped, it is stated, at the rate of 50 per hour. The electrical equipment will be furnished by the General Electric Co., and the change-over is being supervised by the Hulett Engineering Co., Cleveland, as consulting engineer.

New Tap and Drill Chucks

Vertical float tapping chucks, and close-center straight shank drill chucks recently placed on the market by the Apex Machine Co., Dayton, Ohio, are shown in the accompanying illustrations.

The vertical float chuck or holder is for use on multiple spindle tapping machines and is designed to compensate for uneven starting of taps and for the various leads of different size taps. It has a vertical float of $\frac{1}{2}$ in. and is available in two sizes, having a capacity for $\frac{3}{8}$ and $\frac{1}{2}$ in. standard taps, respectively. It is furnished with friction drive holders for bottom tapping.

The close center chuck, shown in the lower illustration, is for use on multiple-spindle drills for drilling



The Vertical Float Tapping Chuck Is Shown in Upper View and Close Center Chuck in Lower

at close center distances. It is designed for holding straight shank drills which are held in the chuck by means of a split taper bushing. Four sizes, having an outside diameter of $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{2}$ and 1 in., are available. The chucks will hold straight shank drills from No. 0 to 5/16 in. inclusive.

Union Carbide & Carbon Corporation Acquires Large Vanadium Resources

The Union Carbide & Carbon Corporation, 30 East Forty-second Street, New York, has exercised an option to purchase the entire assets of the United States Vanadium Co. effective as of Dec. 1, 1926. It is understood that the Union Carbide & Carbon Corporation has been negotiating for and developing the ore bodies and processes for the United States Vanadium Co. for the last year and that it is satisfied that the property of that company will develop into one of the largest producers of vanadium.

This property is located at Rifle, Garfield County, Colo., 300 miles west of Denver, on the western slope of the Rocky Mountains. The ore is mined about 12 miles from Rifle and hauled from the mines to Rifle for treatment in a large plant, the capacity of which has been trebled during the past year. The United States Vanadium Co. also has a smelting plant at Columbiana, Ohio, which has furnished one of the grades of ferrovanadium now on the market.

The sale of both the oxide and the ferrovanadium will be handled by one of the subsidiaries of the Union Carbide & Carbon Corporation, the Electro Metallurgical Sales Corporation, with headquarters at 30 East Forty-second Street, New York, after Dec. 1, 1926.

Welding and Its Limitations Discussed

Acetylene Association Considers Also Heat Treating by Acetylene Flame

SUBSTANTIAL savings in the weight of steel structures are possible through the use of welded joints, provided satisfactory and simple field test methods can be devised so that this type of construction will become more common. Commander H. E. Rossell, United States Navy, asserted, when addressing the twenty-seventh convention of the International Acetylene Association, held at Chicago, Nov. 10 to 12, that 10 per cent of the weight of a ship can be saved if it is welded throughout. On a 10,000-ton cruiser there are 150 tons of rivet heads and points and 15 tons can be saved by welding all pipe connections. Under the present armament treaty any saving made in the weight of a ship's structure can be thrown into military equipment. E. E. Thum, Linde Air Products Co., New York, said that warpage resulting from welding can be controlled, if the work is properly done. Bottoms welded in oil storage tanks can be made as flat as those riveted in place.

Welding Defects in Castings

L. E. Everett, Nugent Steel Castings Co., Chicago, looks upon welding of any nature in a steel foundry as a seemingly unavoidable evil. It is used, however, to overcome defects such as dirt spots, sand spots, slag spots, scabs, shrink cavities, blow holes and cracks. Other defects of a more easily avoidable nature, caused by unfamiliarity of the workman with the various castings are:

1. In removing heads or risers with the cutting torch, they are sometimes burned or cut too low.
2. In flogging, the heads and gates sometimes break back into the casting.
3. In finishing, surfaces are sometimes ground too low.

In general, if the defective area is small and in a location where it has little effect on the strength of the casting, it is safe to weld it. If the defect is large, and where the cost of welding would exceed or even approach the cost of remaking the casting, or the strength and service value of the casting would depend largely on the weld, it is best to remake the casting. The size of the casting, the size, character and location of the defect, the type and application of the casting, all have a bearing upon the selection of the repair process. The cost and productive capabilities of the processes must also be considered.

Various Processes Used

The bare metallic electrode welding process is used to make small repairs such as result from slag and sand spots, small blow holes, etc. This process is used also on surfaces which are to be machined.

The carbon electrode process, or carbon arc welding, has its greatest application in welding the larger defects in heavy castings. Due to the propensity of the arc to deposit carbon in the weld metal, this process is seldom used on the surfaces of castings that are to be machined. It proves to be the quickest and cheapest way of adding an appreciable amount of metal, and the welds are seemingly sound and sufficiently strong. In using this process, recourse is had to the scratch-brush and the hammer, and satisfactory welds of fairly large size are comparatively quickly and cheaply made.

The oxy-acetylene welding process is used largely in welding for leaks in pressure fittings, or elsewhere, when the strength of the weld and its soundness are of primary importance. In other words, when it passes the stage of appearance and the service capabilities of the weld are of prime importance, this process is used.

Three non-destructive weld tests were outlined by H. L. Whittemore, Bureau of Standards, Washington. These were (1) by the measurement of electrical resistance, (2) magnetic property analysis, and (3) X-ray

examination. The second test appears to offer the greatest possibilities, for it is cheap, rapid and easy to use. It is not applicable, however, where the weld is thick or of irregular section. The X-ray method is confined to the location of cracks, voids and impurities. It is limited to thicknesses of 2 to 3 in., and its cost is high.

Acetylene for Heat Treatment

Heat treatment by the oxy-acetylene flame does not include the firing of furnaces with acetylene gas. This has been proposed from time to time, especially when extra-high temperatures have been desired. Seldom, however, would there be a situation where some other gas or oil would not be available at a lower price, which could easily produce the required temperature in a well designed furnace, using forced draft, regenerative heating, or oxygen-enriched blast. The intense oxy-acetylene flame would quickly soften any firebrick lining now known.

In a paper on "Heat Treatment with the Oxy-Acetylene Flame," E. E. Thum said that the most obvious use, as well as the most widespread, of the oxy-acetylene flame is for emergency hardening of small metal-cutting tools, such as lathe tools, milling cutters and drills.

The oxy-acetylene flame possesses the large reserve of heat necessary for the excessively high temperature required when treating high-speed steel, a temperature unattainable except in well designed furnaces. High-speed steel should be quenched from a "sweating temperature"—at that heat the edge and corners glaze and seem to be at the verge of melting. This appearance is entirely independent of color, and can be easily observed through ordinary welding goggles.

Two facts are involved in spot heating with the oxy-acetylene flame. First, the dissolution of the iron carbide crystals into the hot iron crystals occurs at an exceedingly rapid rate. For useful hardening, a spot of metal needs to remain at the correct heat for only an instant. Second, on removal of the flame, the heat, concentrated at a given spot, will be rapidly conducted back into the underlying metal (if it exists in sufficient quantity) so rapidly that the spot is said to be "self-quenched" and is thereby hardened.

Thus, any systematic discussion of heat-treatment by the oxy-acetylene flame must consider (a) the variations possible in the rapidity of heating, and (b) the relations between the size of the flame and the mass of metal surrounding the hot spot.

Hardening of Malleable Iron

Spot hardening of malleable iron is a recent metallurgical development which undoubtedly will have great influence on machine production in the near future. Malleable iron is seldom regarded as a metal susceptible of hardening. It resembles wrought iron in its softness and toughness. It is found that, under the quick, sharp heat of the oxy-acetylene flame, the particles of free carbon dissolve readily in the iron crystals, and a satisfactory hardening results from a quick quench. It is necessary, however, that the heating be intense and very brief. By virtue of low-cost production, tough body, and satisfactory spot hardening qualities, malleable castings heat treated with the oxy-acetylene flame evidently hold out great economies in machine production.

New officers elected by the International Acetylene Association are: W. A. Slack, Torch Weld Equipment Co., Chicago, president; D. C. Duncan, Carbide Mfg. Co., Duluth, Minn., vice-president, and A. C. Morrison, Union Carbide & Carbon Corporation, New York, secretary.

ASK FOR TAX RELIEF

Business Associations Unite to Seek Reduction in Corporate Taxes

WASHINGTON, Nov. 16.—That American business interests want permanent tax relief and not mere refunds or credits was made plain here at a meeting of representatives of some of the basic industries of the country on Nov. 10. The meeting was sponsored by a number of important organizations, including the National Association of Manufacturers, National Lumber Manufacturers' Association, the American Mining Congress, the National Coal Association, the National Petroleum Association, the American Cotton Manufacturers' Association and the National Boot and Shoe Manufacturers' Association. Among those attending the meeting were J. G. Benedict, Waynesboro, Pa., and E. F. DuBrul, Cincinnati, of the National Machine Tool Builders' Association.

Formulate Tax Relief Program

The conference formulated a definite program for corporate tax relief to be asked of the incoming Congress. A petition will be filed with the House Committee on Ways and Means for a public hearing at which Congress will be urged to repeal in its short session the additional one-half of 1 per cent levied on corporate income, effective in the calendar year 1926, and the additional one-half of 1 per cent made effective for the calendar year 1925. The public statement of the Treasury, the business executives pointed out, shows that one-half of 1 per cent additional for 1925 is unnecessary and the additional revenue to be derived from the further one-half of 1 per cent in 1926 will not be required. In addition, Congress will be asked to afford such further temporary and permanent relief as the fiscal circumstances of the Treasury may justify. Further proposals for reform of the present system of proper taxation likewise will be presented through the business groups.

James A. Emery, of the National Association of Manufacturers, was elected permanent chairman of the conference. A permanent executive committee was appointed to represent the conference and additional cooperating associations, that committee consisting of the regular members of the cooperating committee which organized the conference.

Hold Corporation Tax Excessive

Summarizing the conference, Mr. Emery said in part:

"Its members believe that a tax on a corporation is a tax on the stockholder. The characteristic business organizations of the United States are owned by more than 19 million stockholders, including investors, customers and employees. The profits of every dollar invested in the corporate form of business operates more than 85 per cent of the production, transportation, commercial and organized service activities of our people. Every dollar of corporate investment is subjected to a normal tax two and a half times that levied against the individual and partnership business. That rate was increased by the last Congress one per cent in anticipation of a deficit which it was thought might result from the repeal of the corporate stock tax. That anticipation has not been realized. On the contrary, the returns from the corporation tax for the first nine months of the calendar year 1925, at the 13 per cent rate, already exceed by many millions the returns of the calendar year 1924, with a quarter of a year yet to go."

Complications in Relief Measures

The proposal for tax relief has its complications. It is a question what the outcome may be. The plan of President Coolidge to refund cash, it is said, would mean the return of 10 per cent or more of taxes paid during the year 1926. At the same time there are those who point out that if the so-called plan of credit is adopted, the taxpayer who made money in 1925

but none in 1926 would receive nothing. Other apparent discrepancies also have been pointed out. An example is the excise tax on automobiles. While this tax is paid directly by the automobile manufacturer to the Treasury, the fact remains that it actually is paid as a separate and distinct charge by the automobile buyer, yet the latter would receive no refund from this source. The same situation applies as to stockholders of corporations. There are many who because of these complications think the Treasury Department should use its \$250,000,000 surplus to decrease its debts and proceed with a permanent act relief program through legislation, including the cutting of the corporate income tax.

Secretary Mellon's Plan

In the opinion of Secretary of the Treasury Mellon, the estimated income of \$200,000,000 during the present fiscal year, which will end June 30, 1927, will not be derived from the same sources in the succeeding years, and for this reason there should be no permanent revision of the revenue bill at the incoming session of Congress. The Secretary of the Treasury favors the providing of "credit" or "refund" in March and June payments. It is his opinion that this is the best solution for returning some of the accruing surplus of approximately \$250,000,000 this fiscal year to the taxpayers without disturbing the revenue bill in such a manner as to jeopardize revenues in the future. The Secretary of the Treasury is thought to feel that the 1926 law has not been in operation long enough to show what it may do in producing revenue for 1928.

There are those who, while favoring the rebate plan, hesitate to approve it publicly because they realize that if this or any other proposal is made it will mean that the entire matter of taxes will likely be considered by Congress. It is also realized that taxation will be used freely as a political subject and develop all sorts of heated arguments, from a partisan viewpoint. The business groups, however, feel that they have been discriminated against through an increase in the corporate income tax instead of a decrease such as was made in other taxes. They feel that they have a well founded case and will get relief by taking the problem before Congress.

Discuss Use of Seamless Tubing for Munitions

The progress of the plans of the Pittsburgh district industries to make quick change from peace to war-time operating conditions was considered at a conference of the advisory board, Pittsburgh Ordnance District, held in the Dravo Building, Pittsburgh, Nov. 11, at which Ralph M. Dravo, chief of the district, presided, and Brig.-Gen. C. L. H. Ruggles, assistant chief of ordnance, War Department, Washington, represented the assistant secretary of war.

There were numerous addresses by steel company executives, who have been cooperating with the War Department in the effort that has been made since the war to the end that industry shall constantly be prepared for war demands. Much attention was given seamless tubing as material for guns and shells. Homer D. Williams, president Pittsburgh Steel Co., recited some of his observations of the German seamless tube industry, made during a trip abroad last summer. "The Seamless Tube Industry," was the subject of Taylor Allderice, president National Tube Co., while G. P. McNiff, vice-president of that company discussed the manufacture of 75 mm. and 155 mm. shells made from seamless tubing. Frank Bell, president Edgewater Steel Co., Pittsburgh, spoke on the manufacture of guns from seamless tubing, as did G. E. Knable, Carnegie Steel Co.

The requirements of guns and shells were explained by Maj. Keith Adamson, and Capt. H. F. Safford, ordnance department, Washington. A. L. Humphrey, president Westinghouse Air Brake Co., presented the factory war plan, which outlined the steps necessary for a transition from peace to wartime production.

FOUNDRY PROBLEMS

Excess Capacity, Unwise Competition, Poor Cost Data and Lack of Merchandising

Conditions in the New England, Pennsylvania, New Jersey, Ohio, Missouri, New York, Michigan and Illinois foundry industry were discussed at the Nov. 10 meeting of the New England Foundrymen's Association, at the Exchange Club, Boston, by Harry D. Neach, director of market analysis and development, new products division, Sherman Corporation, Boston, engineer, who recently completed an exhaustive survey.

Mr. Neach stated that the problems which confront the foundry industry of the country are, first, too much plant capacity and increasing loss of business, the narrowing of profit margins and diminishing dividends. The survey made by Mr. Neach and his associates included business of job plants and what he terms auxiliary plants, or foundries which are only a part of a larger manufacturing equipment. In auxiliary plants, conditions similar to those in the job plants, although less serious, were found.

In many cases, where auxiliary shops were found with not enough work to keep them busy, business was being sought from outside sources as a means of helping to reduce overhead and to keep the plant constantly in operation. These plants were doing job work which should have gone to the regular job foundry. It was found that many jobs were being taken, not only with small profits, but many times at a definite loss. To meet this competition the job foundries also were taking business at a small profit and sometimes at a loss.

Lack of Cost Data and Merchandising Study

In an analysis of costs of producing castings it was found that, in both classes of foundries, there was no

definite or consistent method of attaining costs. Mr. Neach asserted that as foundrymen as a whole never have made a study of merchandising, they do not know how to merchandise successfully. In this connection and its relation to production costs, he said:

"I would suggest consideration to securing the right kind and type of product, which you can manufacture and sell as your own. In other words, I would suggest that you develop some product which has a substantial market, and which you can manufacture and handle through your own selling forces. Such a proposition will establish a business of your own which competition, to any large extent, cannot destroy. It allows you to control the product through its manufacture and sale, which having been built to successful standards, will offer you a means to uninterrupted progress and growing profits. It means in many instances the establishment and maintenance of selling organizations. It will mean familiarity with advertising campaigns, and the most successful methods of distribution."

Foundry Industry Not Keeping Pace

In relation to costs he said: "I have found production lines unsteady and production schedules uneven. These were due to the fact that labor was not producing to the extent that it should. I have also found that foundrymen have not kept pace with modern methods and developments of manufacture. It is true that the foundry industry is one of the most backward from the standpoint of modern production methods in our country today. Owing to this condition, costs naturally are high."

"An analysis of one company's total manufacturing cost for the last three years shows that the metal that went into its furnaces comprised but 18.8 per cent of the total cost; that the labor, including management, consumed 49.9 per cent of the cost; and that the materials other than metal, plus general manufacturing expense, accounted for 31.3 per cent."

Labor Trouble Short-Lived at McKeesport Tin Plate Mill

Operation of hot mills of the McKeesport Tin Plate Co., McKeesport, Pa., was suspended over the greater part of last week on account of a walkout of the roughers and catchers, who rebelled against instructions to give the sheets additional passes. Defection of these men meant incomplete crews and no steel was rolled from Tuesday until Friday, when the strikers returned. The management disclaims any responsibility for the trouble, stating that it was a dispute between the rollers and two classes of men under them. The roughers and catchers were asked to make five instead of four breakdown passes and to make three instead of two passes of single sheets. On the basis that this would reduce wages, which are based on tonnage, the men walked out.

Rail-River Terminal at Cincinnati Nears Completion

The construction of a river-rail terminal at Cincinnati will be completed within the next month, and the terminal probably will begin operating shortly after Jan. 1, according to George W. Breiel, managing director Cincinnati River-Rail Terminal Co. Rates on iron and steel products have been divided into four groups, as follows:

- Group 1. All structural steel exceeding 35 ft. in length and requiring unusual care in handling, \$1 a ton.
- Group 2. All steel products, such as bars, shapes, plates and other finished material, less than 35 ft. in length, 65c. a ton.
- Group 3. Nails, bolts and nuts in kegs, wire in rolls and spools, and tin plate in boxes, 85c. a ton. In case such products are packed so that they can be handled in "lifts" consisting of a number of units, the cost is 65c. per ton.
- Group 4. Pig iron, or any other material that can be handled by magnets, 35c. a ton.

The rates cover the charge for transferring material from barges to railroad cars or motor trucks. Group 1 includes structural steel the length of which demands the use of more than one railroad car. The rates are based on the cost of similar service at Louisville, Evansville and other river points, and on computed

operating expenses. The Cincinnati River-Rail Terminal Co. hopes to be able to reduce the charges within a reasonable period, after the terminal is placed in operation and the actual cost of handling iron and steel products is determined.

Conference Called to Consider Frame Dimensions for Electric Motors

A general conference on frame dimensions for electric motors will be held in the boardroom of the American Engineering Standards Committee, Engineering Societies Building, New York, at 10 a.m. Friday, Dec. 10. The calling of the conference was authorized by the A. E. S. C. to consider the request of the National Machine Tool Builders Association that the standards of certain dimensions of the frames of motors be taken up by a sectional committee under A. E. S. C. procedure.

The suggested agenda includes the questions: "Is it desirable that standardization work on the subject be undertaken?" and "If so, what shall be the scope of the work?" Discussion of the latter will include a series of standard dimensions for shaft height; a series of standard distances between bolt holes, at right angles to the shaft; a series of standard distances between bolt holes, parallel to shaft; and certain definite combinations of a shaft height with any or both of the distances between bolt holes. A special committee will be appointed to consider sponsorship and formulate scope.

The Cincinnati chapter of the American Society for Steel Treating held a joint meeting with the Engineers Club of Cincinnati, Thursday evening, Nov. 18, at which the principal address was delivered by E. C. Bain, metallurgist Union Carbide & Carbon Corporation, New York. He took as his subject "Alloy Tool Steels, Stainless Steels and High-Speed Cutting Alloys," covering the results of some recent X-ray work with alloy steels.

CALL FOR LOWER WAGES

Soft Coal Operators Face Collapse of Emergency Market and Receive Lower Prices

PITTSBURGH, Nov. 15.—The immediate problem of the soft coal producers is a deflation of wages, in keeping with the deflation of prices that has followed the recent demonstration of the ease with which demands of exceptional proportions can be supplied. Coal prices continue to decline and have now reached levels at which the question instantly arises as to the ability of the producers to continue operations at the advanced wage rates, which came into effect two weeks ago. The range on mine-run coal now is from \$1.75 to \$2.50 per net ton at mines, or just about one-half what was obtained during late October. Seemingly the bottom has not been reached, because production has not yet decreased so much as demand, and for the next few weeks the market is bound to feel the effect of offerings of coal mined in expectation of a sustained outlet.

The termination of the strike of the British miners spells a marked decrease in, if not the complete cessation of, the extra export demands, which were the primary cause of the price flareup. Commercial stocks of coal in the United States have been increasing in rapid fashion over the past six weeks. Against the estimate of the Bureau of Mines on Oct. 1, of 44,000,000 tons, they are now believed to be above 56,000,000 tons, as there has been since Oct. 1 an average 2,000,000 tons of coal weekly that could not be accounted for in the regular consuming channels, which are believed to have gone into stock.

Lake and Export Shipment

Today marks the close of lake shipping against which insurance will be issued, and approximately 1,000,000 tons, which has been weekly going to the Great Lakes, soon must find other outlets. It is not a happy picture for the soft coal producers, who recently saddled themselves with the so-called Jacksonville scale of wages and now must sell at prices that show little or no margin over costs entailed in that scale.

Aluminum Company Charged with Monopoly in Water-Power

To the charge that the Aluminum Co. of America is a monopoly in its field, the Federal Trade Commission had added the charge that it is also monopolistic in water-power. This was brought out Nov. 8 to 10, at Pittsburgh, in the third sitting of the commission since the investigation of the company was begun almost a year ago. R. P. Whiteley, special counsel for the commission, said that he had a list of water-power companies directly affiliated with, or controlled by the Aluminum company.

Arthur V. Davis, president of the company, was the principal witness during the three-day hearing. Mr. Davis defended as entirely legal the company's practice of giving a price concession on lots of 50 tons or more and said that all customers of the company knew, or could learn upon inquiry, of the lower price on large than on small lots. Questioned as to the company's interest in bauxite deposits in British Guiana, Mr. Davis, after at first declining by advice of counsel to answer, subsequently testified that the Republic Carbon Co., a subsidiary, owned one-third of the ore lands and the remainder was owned by the Carborundum Co. and the Acheson Graphite Co., both American companies. He further testified that the company's holdings of bauxite deposits were as follows: United States, 620 acres; British Guiana, 1000 acres; Dutch Guiana, 2500 acres; France, 60 acres; Italy, 100 acres, and Jugo-Slavia, 5 acres.

As to water-power development, Mr. Davis estimated that the company held or controlled between 1,300,000 and 1,400,000 hp., both in developed and undeveloped projects. He added that a large percentage

of the holdings listed as water-power possibilities were farm lands on which power development could be worked out only in conjunction with and under Governmental authority.

Atlantic seaboard piers still are congested with coal awaiting export. Four weeks ago the Pennsylvania Railroad imposed an embargo on shipments to the piers and accepted export shipments only on permits that it granted, shipped only upon evidence of a bona fide export order. The permit situation is tighter, which suggests that the coal still is reaching the piers in quite as large volume as it is going into the boats. The Baltimore & Ohio Railroad, over the last three days of last week, refused all export shipments, in an effort to reduce the stocks at the piers it serves. No exact figures are available as to total stocks at the piers, but there are suggestions that they are sufficient to supply a good part of the requirements to be filled between now and the time the British mines get back to a normal producing rate.

Coke in Sympathy with Coal

The coke market, which went up with that in coal, is feeling the reaction in coal. Connellsville furnace coke, held at one time as high as \$5.75 per net ton at ovens, although it is doubtful if there were sales at more than \$5.50, has slumped to \$4.25 and seems likely to go still lower, because the supply exceeds the demand, as there are few blast furnaces in operation that are not covered through this month and next. Coke moving on contracts has been marked up in price to cover the increased producing costs imposed by the wage increase, but it is not costing the consumers more than \$4 per net ton at ovens, and some not even that much, as the average increase was about 75c. per ton, and the original contracts called for \$3 on the bulk of the tonnage, with smaller tonnages at \$3.25 to \$3.50.

Incidentally, the attempt to pass this increase along to pig iron consumers has had no success. Basic iron was priced at \$18.50, Valley furnace, when the change came and No. 2 foundry grade at \$19, and in the past week sales of these grades have been made at those prices. Bessemer iron has stiffened, but this is due to the fact that there is not much competition in that grade, and it is noted that, against a recent asking price of \$20.50, Valley furnace, producers now are offering it at \$20 for shipment this year or for the first quarter of next year.

Ownership of the Southern Aluminum Co., Baden, N. C., Mr. Davis said at the closing session, was acquired as a result of the World War, and came in compliance with a direct request from the French Government in 1915 that the property be taken over from its French owners in order that it could be utilized in the production of war material. It was used then and later after the United States entered the war.

The company reached maximum production in the United States in 1924 with an output of 150,000,000 lb., Mr. Davis said in answer to a question from Mr. Whiteley.

Orders Two More Ore Boats

The Pittsburgh Steamship Co., subsidiary of the United States Steel Corporation, has placed orders for two 600-ft. lake ore boats for 1927 delivery. One will be built by the Toledo Ship Building Co. at its Toledo, Ohio, yards and the other by the Great Lakes Engineering Works at its River Rouge yards. The boats will be practically duplicates of the last two that were built for the Pittsburgh Steamship Co.'s fleet in 1923. With the placing of these orders, lake ship builders have contracts for eight large freighters for next season's delivery.

Follansbee Bros. Co., Pittsburgh, is spending \$100,000 in an extension to its warehouse on South Ford Street, Rochester, N. Y., which will provide between 15,000 and 20,000 sq. ft. of additional floor area.

TOO MANY REPORTS ASKED

Plea for Reduction of Excessive Duplication of Industrial Data Demanded by Government

ITHACA, N. Y., Nov. 12.—The American Engineering Council today took action to check the flood of demands for data from corporations made by Federal and State Governments. The council, through its administrative board, meeting at Cornell University, voted to cooperate with the National Association of Manufacturers and other bodies in devising a plan to minimize the volume of corporate reports, which, it is charged, impose on industry useless burdens costing millions of dollars annually. The engineers were urged to act by the Manufacturers' Association, which, in a communication presented to the council today, said:

Other than fundamental data gathered every two years, at the instance of and useful to manufacturers, corporations are beset by numerous demands, some authorized by law and some not authorized, to make reports, statistical and financial, to sundry Federal bureaus and departments and to the States.

These are of such frequency as to approximate 100 separate reports annually from some manufacturing corporations. They are a serious tax on the time of important officials of the corporations as well as an item of no small expense in the conduct of business.

It is believed that some systematic effort along this line can be made to produce tangible results so that corporate reports can be reduced to a modest number and at the same time be so unified as to minimize greatly the time and effort required in their preparation.

The Engineering Council, under the direction of President Dexter S. Kimball, will begin at once to work out a remedy by laying plans for "a comprehensive attack on the problem," with the aid of Federal and State officials, industrialists, accountants and other interested groups.

"Our experience has led us to believe," Dean Kimball said, "that a great deal of the information col-

lected by the various governmental agencies is not readily usable. More serious, perhaps, is the fact that information collected by one agency cannot be coordinated with that gathered by another.

Example of Cross Purposes

"A special committee of the council is conducting a nation-wide study to determine the relationship between safety and production in industry. This committee must necessarily pursue two lines of inquiry. One line relates to the number and severity of accidents, the other to quantity of production. As to accidents, the following governmental agencies collect information: Department of Labor, Interstate Commerce Commission and Bureau of Mines. These statistics cannot be readily combined or used in any comparative way.

"It is impossible to make any sort of comparison between accidents and production from data accumulated, for instance, on accidents by the Department of Labor and on production by the Bureau of Census. Could this have been done, the safety and production study in which the Engineering Council is now engaged could have been accomplished at far less cost.

"Coordination between the different Federal data-collecting divisions, involving agreement as to the nature of the data to be collected and the field which should be covered by each, would enormously increase the possibilities of usefulness."

Housing the Patent Office

Adequate provision for housing the Patent Office as a part of the Government's \$50,000,000 building program in the District of Columbia was also urged by the Engineering Council at today's session. Increased facilities and space for the Patent Office are essential, it was asserted, to science, invention and industry.

The council voted to hold its annual meeting in Washington, Jan. 12 to 15.

Examiners Make Reports on Pipe Rates in Southwest

WASHINGTON, Nov. 16.—Acting upon a complaint of the Lone Star Gas Co., Examiner G. J. Hall, in a tentative report to the Interstate Commerce Commission, has recommended that it find that rates on wrought iron pipe and pipe fittings, in carloads, from points in Texas to points in Oklahoma and from points in Oklahoma to points in Texas, are unreasonable to the extent that they exceed the scale prescribed on iron and steel pipe in the Memphis-Southwestern case.

A similar finding was recommended in a proposed report by Examiner John T. Money concerning rates on wrought iron pipe, drilling rings, oil well supplies and outfits and steel tanks, in carloads, from and to points in Louisiana and Arkansas. Mr. Money held that rates on gas engines, steam engines and boilers, in carloads, for the same movement are not unreasonable. His report was based on a complaint by the Standard Oil Co. of Louisiana.

Electric Steel Founders' Group Holds Conference in Chicago

Periodic conferences of the sales representatives of the Electric Steel Founders' Research Group are held for the collective consideration of the basic principles of merchandising small and medium-sized steel castings, manufactured by methods approved as the result of cooperative technical research. The foundries holding membership in this organization are the Fort Pitt Steel Casting Co., McKeesport, Pa.; the Lebanon Steel Foundry, Lebanon, Pa.; the Michigan Steel Casting Co., Detroit, the Nugent Steel Castings Co., Chicago, and the Sivyer Steel Casting Co., Milwaukee.

One of these conferences was held at the Edgewater Beach Hotel, Chicago, Oct. 29 and 30, at which not only the salesmen, but the foundry managers were present. The feature was the fact that three of the five subjects for papers were assigned to persons not associated

with any company holding membership in the group. These individuals were C. E. Stone, vice-president and general manager Interstate Drop Forge Co., Milwaukee; Walter Buchen, president Buchen Co., advertising consellers, Chicago, and W. J. Corbett, secretary Steel Founders' Society of America, Pittsburgh. The helpful viewpoints of outsiders are ascertained by the participation in these conferences of persons who are not connected with the organization.

Testing Society to Meet Next Year at French Lick Springs

For the first time in its history the annual meeting of the American Society for Testing Materials will be held in the Middle West instead of on the Atlantic seaboard. French Lick Springs, Ind., has been selected by the executive committee as the place for the 1927 meeting and the dates are June 20 to 24. Several important considerations have influenced the decision on this matter which has been before the society for some time. An analysis of the returns from the recent questionnaire to members indicates that slightly over 60 per cent of those who answered voted for some place other than Atlantic City.

Because the membership of the society is country-wide, and because the sentiment to have occasional meetings held in the Middle West has steadily grown in recent years, it was felt that any move from Atlantic City should be westward. Before a decision was reached, although French Lick Springs received the largest number of votes outside of Atlantic City, President J. H. Gibboney; K. G. Mackenzie, chairman of the committee on annual meetings, and C. L. Warwick, secretary-treasurer, visited the French Lick Springs Hotel and investigated its availability. So satisfactory was the result of this investigation that the decision was easily reached. The next annual meeting marks the twenty-fifth anniversary of the incorporation of the society and plans are being considered for the special commemoration of this event.

Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Current Statistical Data, Considered Independently of Trade Opinion, Indicate That:

DOWNWARD trend in steel production is likely to continue through December.

Finished steel markets seem to be facing a gradual decline.

Steel ingot production is about 11 per cent above present estimated normal requirements.

Pig iron production is approximately 16 per cent above estimated normal requirements.

Somewhat lower prices for iron seem to be in prospect.

Scrap prices are weaker and may show a moderate decline.

PROBABLY the outstanding developments shown by the iron and steel statistics for October were the concurrent gain in the pig iron output and the virtual decline in the steel ingot output. The result is a lack of balance in the industry which will require correction and which, within a month or two, will result in a decline in pig iron prices, unless the logical tendency is counteracted by other developments not now in evidence.

As forecast in this department, pig iron prices increased in October. The average for the month was \$19.69 against \$19.46 in September. On Nov. 9 THE IRON AGE index had reached the high point of \$20.21.

Pig Iron Production High

AT the same time, production of pig iron increased more than usual for the season and was larger than in October, 1925. The pig iron output of 3,334,000 tons was approximately 6 per cent larger than in September. As the usual seasonal gain is only about 3 per cent, it follows that our adjusted index of pig iron production moved higher, being 115.8 against 113.1 in September. It is true that this is considerably below the peak of the year, reached in April and May, when the index was 121.8, but, in view of the current rate of steel production, the pig iron output seems large.

In fact, pig iron production continues well above "normal," according to all bases of figuring the normal requirements of the country, and according to our estimate it is 15.8 per cent above such requirements. This clearly abnormal rate cannot continue much longer, and the longer it continues the more certain will be the ultimate decline in price. Rarely, if ever, do pig iron prices advance for more than one or two months after the trend of steel ingot production turns downward.

The ratio of the production of pig iron to the production of steel increased in both September and October. The increase was not large and the ratio is not

so excessive as to indicate a severe setback in iron prices, but it does indicate a weaker market.

The recent weakening in coke prices is a reminder that the forces which have brought strength to the iron market have been largely temporary in character and will soon disappear, with the settlement of the English coal strike.

Steel Trend Continues Downward

AS in September, the trend of ingot production in October was distinctly downward. This second month of declining trend brings our adjusted index to the lowest point reached since March. The October production of 4,092,500 tons was only about 4 per cent larger than the 3,930,700 produced in September. The usual seasonal gain is 8 per cent. Accordingly it may be said that there was a virtual decline in ingot activity. Allowing for seasonal variation and the normal growth of the industry, our adjusted ingot index for October was 111.1 against 116.4 in September. Thus steel production is only 11 per cent above normal, while iron production is nearly 16 per cent above.

It is probable that further considerable declines in the steel production index will occur in November and December. The seasonal trend is downward in those months and it is not unlikely that the actual decline will be greater than usual, so that our adjusted index may fall nearly to the normal level, which would be for the general good of the industry.

The unfilled orders of the Steel Corporation showed a slight increase. The gain, however, was little more than that which usually occurs in October, chiefly due to orders for rails. At 3,683,000 tons, the unfilled orders compare with 3,594,000 tons in September and 4,109,000 tons a year ago. The peak of the movement was reached last December, when the figure was 5,033,000 tons. The October figure was little different from that of July, which amounts to saying that it was very

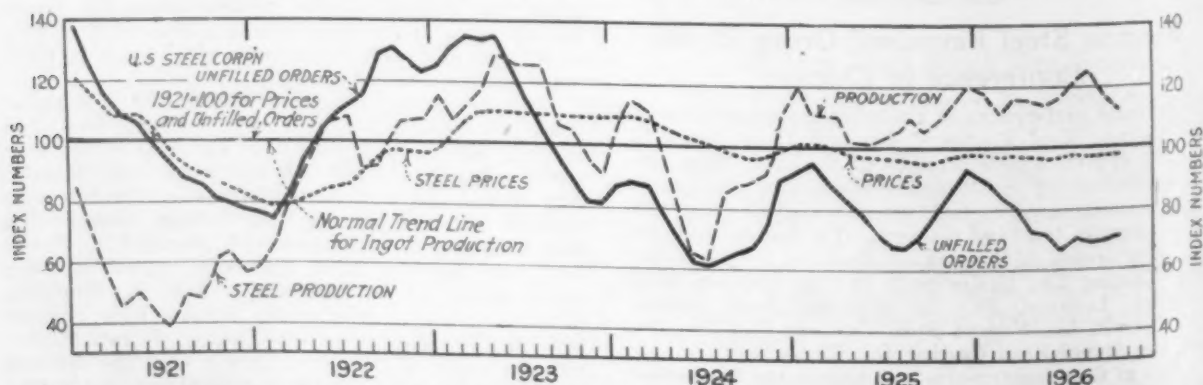


Fig. 1—In Contrast with the Usual Seasonal Increase in Steel Ingot Production, Corrected for Normal Growth of the Industry, October Output Showed a Moderate Downward Trend. Continued high consumption of steel, while probably below production, was enough to prevent a sharp drop

In This Issue

Says foremen have not kept pace with industrial progress.—Industry is being penalized by failure to act on this problem, says American Radiator Co. executive. Recommends either that present personnel be trained systematically or that their places be taken by technically educated men.—Page 1403.

"World hunger" for steel has not materialized.—Investigator points out that consumption of iron and steel in the neutral markets is actually 8 per cent below what it was twelve years ago.—Page 1405.

Duralumin sheets are "sewed" together to make bag for all-metal dirigible.—New construction is actually lighter than fabric-covered ship; stronger, fireproof, and in addition, reduces loss of hydrogen.—Page 1403.

Welding of defects in steel castings can be practised too freely.—Do not permit it to encourage a let-down in the fight against poorly made castings. Instead of welding defects, it is frequently better to remake the casting.—Page 1417.

Oxy-acetylene flame is useful in hardening high speed steel.—Provides the intense heat necessary. The steel should be quenched from a "sweating" temperature at that temperature when edge and corners glaze and seem to be on the verge of melting.—Page 1417.

Petition Congress to repeal the recent increases in corporate taxes.—Business associations have acted jointly in requesting a repeal of the $\frac{1}{2}$ per cent tax increases assessed in 1925 and 1926.—Page 1418.

Urges job foundries to develop and market a product of their own.—Competition from auxiliary foundries, which take business at little or no profit, has added to the difficulty of making money in the commercial casting business. The only way to be free of this kind of competition is to make a proprietary product.—Page 1419.

Unfilled steel orders gain moderately.—Oct 31 total for United States Steel Corporation was 3,683,661 tons, an increase of 90,152 tons over previous month.—Page 1459.

Reduces carburizing costs by installing rotary furnaces.—Chain manufacturer finds that production is increased and a more uniform product obtained by using furnace with revolving retort.—Page 1408.

Freight cars completely emptied in 90 sec.—New car dumper is so counter-balanced that the power required to hoist a loaded car is practically the same as power required to pull the cradle and the empty car down after dumping.—Page 1452.

American iron and steel mill workers receive from two to four times the wages paid in German mills.—And the Germans work 10 hr. a day except in the blast furnaces. The steel mill workers are actually in the plant 12 hr. a day, being required to stay within call during the half hour relief periods.—Page 1411.

The shop baseball team has disbanded.—Government investigation reveals that recreation facilities provided by industrial establishments are rapidly disappearing. Labor is interested primarily in a fat pay envelope and the expenditure of money for "frills" oftentimes has an effect exactly opposite to that desired.—Page 1431.

Heat-treating of malleable castings with oxy-acetylene flame promises appreciable economies.—Quick, sharp heat gives a satisfactory spot hardening especially adapted for malleable castings.—Page 1417.

Finds that angular grains of sand do not produce a stronger core.—Contrary to the general belief, cores made with sand containing rounded grains are stronger, investigator reports.—Page 1427.

Will surplus tax revenue be refunded in cash or credited on next tax bill?—The chances are that neither course will be approved by Congress, and that the surplus will be used to reduce the national debt. Many who favor a direct rebate remain silent, realizing that it would mean an entire reconsideration of taxes by Congress.—Page 1418.

Declining coal prices present the problem of deflating wages.—Collapse of the emergency market, with attendant steady falling off in prices, causes producers to question whether operations can be maintained at the advanced wage scale adopted two weeks ago.—Page 1420.

Useless reports demanded of industry by Government cost millions of dollars annually.—Engineering Council takes action to check the demand for data that serve no useful purpose. Coordination between different Government departments would reduce the excessive duplication which is burdening industry.—Page 1421.

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Broader Aspects of Industry

EACH year it becomes more difficult for a business publication to determine what limits should confine it in recording the events of the particular industry which it serves. THE IRON AGE, devoted to the metals and metal working industries, recognizes that their activities have penetrated so deeply into business life that the record must necessarily be a reflection of business as a whole.

Government, economics, finance, world trade—all have become of vital importance to industry. The point has been reached where no account of the development of iron and steel is complete without a consideration of the progress being made in these broader fields. Our pages constantly offer the reader an opportunity to focus his attention upon his work as seen on the background of diversified business life.

For News Summary See Reverse Side

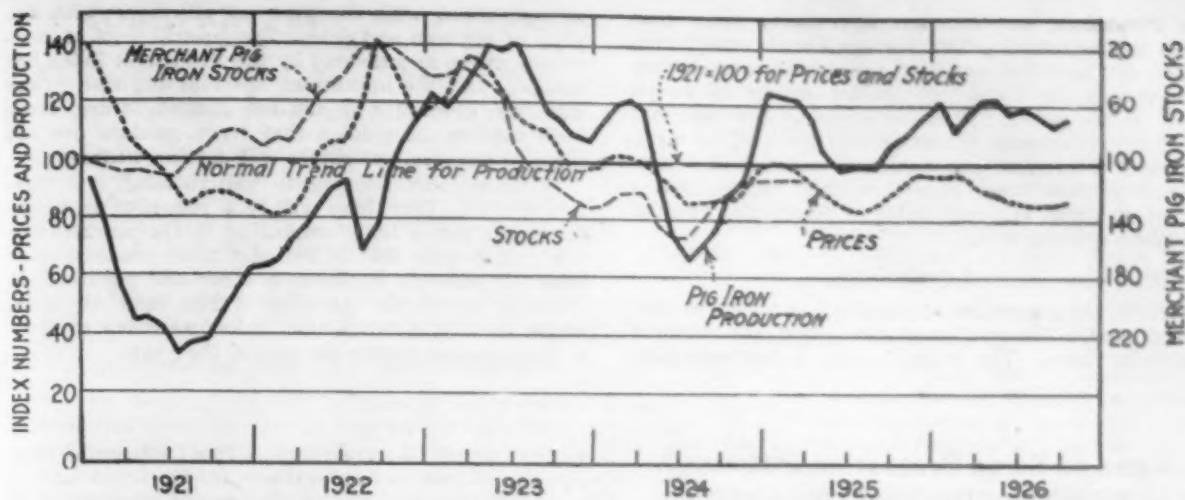


Fig. 2—Though the Continuing High Rate of Steel Production and Consumption Somewhat Justifies the High Output of Pig Iron, a Decline in the Trend of Production Seems Inevitable. Prices have been below the normal line for many months

low and that there had been little trend during the last few months.

Except for October, 1924, the unfilled orders figure for the same month this year was the lowest for the season that has existed in any recent year. It is notable that the trend of unfilled orders was distinctly upward at this time in 1924 and in 1925. The present continued sidewise movement of the unfilled orders index is a clear indication that steel buying is not showing the gains that have developed in the late fall months of the last two years.

Price Changes Slight

FINISHED steel prices averaged slightly higher in October. THE IRON AGE index was 2.449c., against a September average of 2.439c. By November 9 the

index had reached 2.453c. We do not consider this slight advance to be significant. Most of the finished steel items have remained unchanged and the advances have not applied on much business. The price trend is probably weaker. It would be hard to find any time that steel prices have shown any sustained advance when the adjusted production curve has fallen as sharply as it has for two months in succession, and when unfilled orders are so low as they now are.

The October price structure as illustrated in the third chart shows few important changes. Sheets, nails, bars and billets continued steady throughout the month without quotable change from the average of the preceding month. Pig iron averaged higher, following advances in steel scrap and coke.

The October average for heavy melting steel scrap

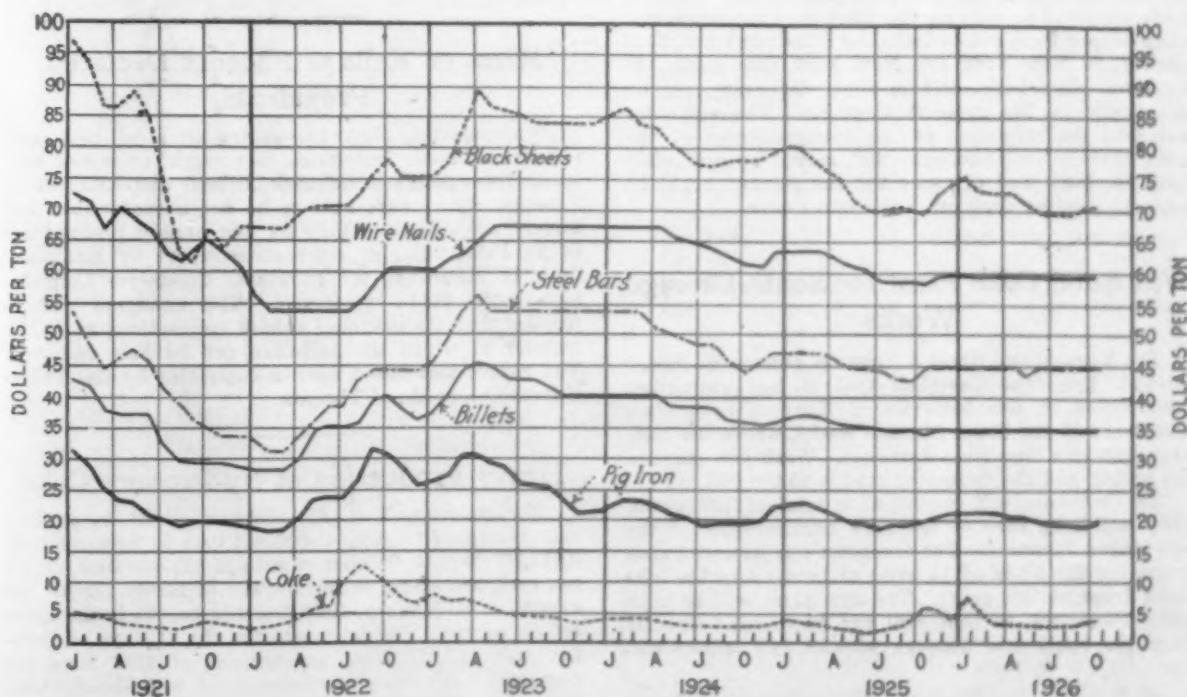


Fig. 3—The General Trend of Steel and Iron Prices, Which Has Shown a Sagging Tendency Since Last Winter, Has Now Turned Slightly Upward in Some Items; Others Remain Unchanged

Schedule of the next installments of the Business Analysis and Forecast, by Dr. Lewis H. Haney, Director New York University Bureau of Business Research, follows: Nov. 25—General Business Outlook; Dec. 16—Activity in Steel Consuming Industries; Dec. 23—Position of Iron and Steel Producers.

at Pittsburgh, however, was appreciably lower than that for September. The average for the month conceals the fact that scrap of this grade showed some recovery in the Pittsburgh market during the second half of the month. It seems probable, however, that the monthly average shows the real trend of the scrap market. There has been continued weakness in a number of markets other than Pittsburgh and in certain kinds of scrap, and such bases of forecasting as exist indicate a lower trend.

Conclusions

THUS, the production of pig iron has gained on that of steel. The steel ingot production has shown a declining trend. The price of scrap is relatively high

in comparison with the price of billets or with the price of pig iron and coke. The general level of commodity prices as measured by the Bradstreet index has declined. As the indications are that pig iron prices will turn downward in the not distant future, these facts confirm the opinion that scrap markets are not likely to advance, but rather will develop weakness.

If these conclusions prove well founded, it is further probable that there will be a reduction in prices for sheets and a little weakening in the markets for bars, as we note that in the past these products have generally reflected weakness in scrap and pig iron. It would be surprising, therefore, if THE IRON AGE composite index of finished steel prices were not to show a slight decline before the end of the year.

Rates on Scrap Brass from Pittsburgh to New York Declared Unreasonable

WASHINGTON, Nov. 16.—Rates on scrap brass and scrap copper, in carloads, shipped prior to Aug. 15, 1925, from certain points in New York and New Jersey to East Liberty and Pittsburgh, Pa., were found unreasonable, with some exceptions, in a tentative report by Examiner J. P. McGrath to the Interstate Commerce Commission, made public yesterday. The examiner recommended that the commission find that the rates attacked that were in effect prior to May 3, 1922, were not unreasonable, but that during the period from May 3, 1922, to Aug. 14, 1925, inclusive, they were unreasonable to the extent that they exceeded 25c. prior to July 1, 1922, 22.5c. on and after that date on scrap brass, 22.5c. on scrap copper from July 1, 1922, to Nov. 26, 1923, and 23c. on scrap copper from Nov. 27, 1923, to Aug. 14, 1925. These rates were recommended, subject to the same carload minima as those applicable in connection with like traffic from Pittsburgh and East Liberty over the Pennsylvania and Erie Railroads to New York and New York rate points. Reparation also was recommended. Effective Sept. 15, 1925, the railroads proposed to increase the rates on scrap brass and scrap copper from points including Pittsburgh and East Liberty, to New York and New York rate points, to the sixth class basis, and to apply the same rate on this traffic in the opposite direction. The examiner said that determination of the reasonableness of the rates charged on shipments that moved on and after Aug. 15, 1925, and of rates for the future should be deferred pending decision in the latter case.

Will Build Coke Plant for South Chicago Works

The Youngstown Sheet & Tube Co. announced Nov. 5 through President Campbell that it had authorized construction of two batteries of Koppers by-product coke ovens at the South Chicago works, where the company operates four blast furnaces. Work will start in the spring and the estimated cost is \$5,000,000.

The batteries will consist of a total of 120 ovens. They will take care of the coke requirements of the two larger furnaces. The company has awarded contracts for the fill-in of 15 acres of land along the lake shore front at this point. The new plant will be built along the shore, so that coal can be dumped directly from the boats into hoppers without rail transportation.

In addition to this plant, the Sheet & Tube Co. operates by-product coke properties at Indiana Harbor, Mayville, Wis., and at its Campbell works.

President Campbell says that business is "reasonably good," considering the election and other conditions, and he predicts a satisfactory first quarter in 1927. The development of railroad buying is an important factor in the current steel situation, he points out. He further states that negotiations for a merger of the Continental Supply Co., a subsidiary of the Sheet & Tube Co., with the Oil Well Supply Co., Pittsburgh, have been definitely abandoned. Legal ob-

stacles proved insurmountable. The Continental Supply Co. maintains headquarters in St. Louis and is a distributing agency for the parent company. It operates a group of warehouses throughout the Southwest, from which pipe and other supplies are distributed to points of consumption.

Rates on Bar Iron Declared Prejudicial to Knoxville

WASHINGTON, Nov. 16.—Passing upon a complaint by the Knoxville Iron Co., Knoxville, Tenn., Examiner W. K. Berryman, in a tentative report to the Interstate Commerce Commission made public yesterday, held that less-than-carload rates on bar iron from Knoxville to points in Georgia are not unreasonable, but are unduly prejudicial to the complainant and unduly preferential of shippers at Birmingham. He recommended that the railroads should eliminate the undue prejudice within a reasonable time. The rate from Knoxville to Atlanta, Ga., is 39.5c. per 100 lb., while the rate from Birmingham to Atlanta is 21.5c.

Rates on Rails to Phoenix Declared Prejudicial

WASHINGTON, Nov. 16.—Rates on steel rails and rail and cross-tie fastenings, in straight or mixed carloads, from points in Colorado, Illinois and Alabama to Phoenix, Ariz., were held to be not unreasonable, but unduly prejudicial to Phoenix and unduly preferential of El Paso, Tex., in a tentative report by Examiner John H. Howell to the Interstate Commerce Commission made public yesterday. The examiner recommended that the railroads submit suggestions as to the manner in which the prejudice can be best removed. The report was based upon a complaint by the Pratt-Gilbert Co., et al., of Phoenix.

Heavy Production of By-Product Coke

WASHINGTON, Nov. 15.—Production of by-product coke increased from 3,641,000 net tons in September to 3,812,000 tons in October, a gain of 171,000 tons, or 4.7 per cent, according to the Bureau of Mines. With the exception of January, 1926, October output is the highest on record. The daily rate for the 31 days of October was 122,975 tons, an increase of 1596 tons per day, or 1.3 per cent, when compared with the September rate. The 76 plants active in October produced about 91 per cent of their capacity.

Beehive coke output for October showed a decided drop, the estimated total being 867,000 tons for the month, compared with 1,310,000 tons made in September. The decrease of 443,000 tons is nearly 34 per cent. Production of beehive coke declined slightly in the week ended Nov. 6, the estimated total for the country being 192,000 tons, as against 196,000 tons for the week ended Oct. 30. In spite of an election holiday, production of soft coal during the week ended Nov. 6 was again above the 13,000,000-ton mark.

CORE BINDERS AND CORES

Standard Sands and Cereal Binders Reviewed by Foundrymen—Properties of Core Oils

THE results of an investigation intended to establish a specification for sand which could be recommended for general use in testing core binders were given in a paper by Dr. H. L. Campbell, assistant professor of metallurgical engineering, University of Michigan, at a session devoted to core binders and cores, conducted as part of the program of the recent convention of the American Foundrymen's Association.

Standard Sand for Core Binders

The title of Doctor Campbell's paper was "A Standard Sand for Use in Testing Core Binders." In making the investigation, 24 representative samples of core sands were collected from natural deposits or from foundries and were tested for grain size. The effect of grain size on dry bond and permeability was determined. From data given it appears that the dry bond strengths of oil-sand cores vary with different grain sizes of sand. There is a tendency for the strength to increase as the grains of sand become smaller. Contrary to the general belief that angular grains produce an interlocking effect which strengthens the mass, it was said that cores made with an angular sand are considerably weaker than those made with sand containing rounded grains of the same size.

From the results of the tests it was concluded that sand for testing purposes should be limited to one screen size. Sand which passes a 60-mesh sieve and is retained on a 70-mesh sieve was suggested as a possible tentative standard for use in testing core binders. Because of the difficulty of obtaining Ottawa sand of this specific size, a screened Michigan City sand, which is clean and free from foreign matter, was regarded as satisfactory. When tests are required on clay-bonded sand, a definite proportion of a specified clay which passes a 200-mesh sieve may be added to the 60-70 mesh Michigan City material. Discussion centered for the most part around the use of the Ottawa vs. the Michigan City sand, the use of the former being advocated by many. Doctor Campbell pointed out that the 60-70-mesh size exists in small proportion in the Ottawa material, and that the cost of 3c. a lb. would make its use almost prohibitive.

Cereal Binders in Cores

A second contribution to this session by Doctor Campbell was a paper on "Methods for Determining the Properties of Cores Made with Cereal Binders." In this paper the methods developed for measuring the green bond of core sand mixtures and the permeability of dry sand cores were outlined. It was pointed

out that these properties, as well as the dry bond strength of cores, should be obtained when comparing the relative values of cereal binders or establishing the most economical practice in the use of any of the cereal binders.

The machine developed for green bond testing and the apparatus used in measuring the permeability of dry sand cores were illustrated and discussed. These devices were also demonstrated during the convention in the booth of the division of engineering research of the University of Michigan, the booth being located with other educational exhibits in the registration building.

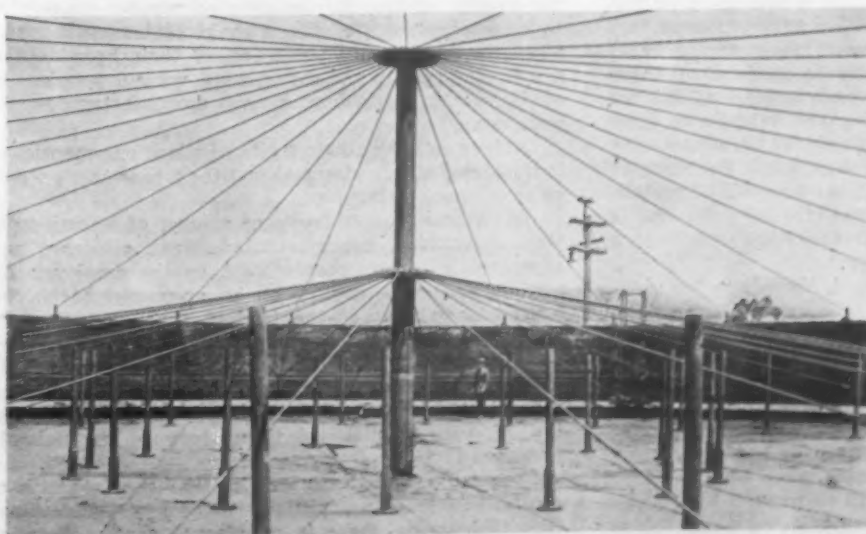
Information on Properties of Core Oils

"Some Properties of Core Oils," a comprehensive paper by C. A. Hansen, General Electric Co., Schenectady, was presented in abstract by the author. In this investigation five commercially pure vegetable oils were studied to determine the maximum core strengths developed with varying oil ratios; the baking time required to attain maximum strength at various temperatures, and to determine the effect of moisture on the strength of baked cores. The effect of various driers and diluents, of varying proportions of rosin, of boiling the oils and oil mixtures, was also investigated.

General conclusions drawn from the investigation, but stressed as subject to correction after review of further evidence, included the following:

Oils, as binders, possess three peculiarly excellent merits. 1.—Relatively little oil is capable of strongly bonding a considerable quantity of clean sand. 2.—The strength of oil-bonded cores is but slightly affected by moisture. 3.—The oil bond is so readily broken down by heat that the cores offer but little resistance to the shrinkage of hot castings and but slight resistance in cleaning out. These merits are peculiar in that they are found in combination in oil binders.

Disadvantages which seem peculiar to oils were given as follows: (1) Clean sands, mixed with simple oils and water, are very weak in respect to the green strength recognized by the core maker, as distinguished from the green strength measured in the laboratory. (2) Simple oil sand cores do not skin harden in any practicable time on air drying, as when the cores are stored on racks preliminary to charging them into the baking ovens. Such cores remain weak and fragile, and the loss of unbaked cores is sometimes serious. (3) Simple oil bonded cores require careful attention in baking in order that they shall develop reasonably near maximum strength for a given oil cost. Improperly baked cores are often obscured by the behavior of auxiliary binders. (4) In respect to cost for equivalent strength, the oils are twice to four times as expensive as the cereal type binders, the glutrin-goulac binders, etc., and they are at even greater disadvantage as compared with the pitches.



FLOATING roofs are being used on fuel oil tanks of the Southern Pacific Co. This roof of a 55,000-bbl. tank at Los Angeles does not allow gas to collect between the oil and the tank roof.



BOOK REVIEWS



Physical Metallography. By E. Heyn. Translated and somewhat augmented by Marcus A. Grossmann. Pages 440, 6 x 9½ in.; illustrations and diagrams, 318. Published by John Wiley & Sons, Inc., New York. Price \$6.

This is far more than the usual work on metallography which deals chiefly with the microscopical examination of metals and alloys. Instead the properties of metals, steels and alloys, as revealed by different methods of investigation, are carefully discussed and described. It is a painstakingly thorough book, in keeping with much German scientific work and particularly that of the late Professor Heyn. It has been translated with sympathy and ability by Mr. Grossmann.

Almost the first thing in the book is the bibliography, which covers 16 pages. It is, therefore, much more complete than usual, the references to the chapter on structure of metals and alloys, for instance, being no less than 145. Needless to say, such a bibliography is of value to careful workers in the various subjects covered. The first chapter is a short introductory one of four pages on a general survey of metals and alloys. It is followed by a long one of 77 pages on developments during freezing and cooling of alloys. This covers the ground found in many standard works on metallography.

The equilibrium diagram of salt and water is carefully described and studied. This type of diagram is then applied to metals, taking lead and antimony as an example. Next comes a good discussion of the phase rule, followed by one on equilibrium diagrams of binary and ternary alloys, all by types. It is felt the discussion of the various types might have been helped if examples had been given from practice.

Chapter 3, of 53 pages, is on methods of determining the equilibrium diagrams, with good sections on pyrometry and the measurement of temperatures, the various types of cooling curves and other methods of investigation, such as coefficient of expansion, specific gravity and specific volume, and electric potential.

Next come the two main chapters of the book, Chapter 4, of 70 pages, on structure of metals and alloys, and Chapter 5, of 128 pages, on properties of strength and hardness.

Chapter 4 first discusses fractures briefly but well. It is not very complete on the preparation of specimens for microscopical examination, and brief but good on the development of structure. The Martens type of metallographic apparatus is fully described, probably too much space being given to this piece of apparatus, and certainly not enough to the more widespread Le Chatelier type. A good and suggestive section of this chapter is the one on the formation of structure, cell structure, foam cells, etc. It is also good on the cold working of metals, but not so exhaustive on this subject as Jeffries and Archer in their recent book, "The Science of Metals." Several sections of these two chapters cover much the same ground as Jeffries and Archer, and it is interesting and valuable to have the German viewpoint on formation of structure, cold work and reheating, grain growth, etc. The chapter closes with a clear section on X-ray analysis of metals, evidently due to Mr. Grossmann, for no reference is made to the investigation by the Laue diagram, a method widely used in Germany.

Chapter 5 opens with a good, though rather complicated, discussion of factors of safety and endurance limits. The use of Greek symbols for our well-known terms yield point, ultimate stress, etc.; makes the argument rather hard to follow. Here again there is an excellent section on the effects of cold work. The effect of notches leads to a discussion of the various systems of impact testing; testing for hardness, workability and machinability are also taken up.

Following two short chapters on metallic substances and gases and on shrinkage comes a valuable chapter containing a discussion of magnetism, magnetic properties and magnetic testing. This is followed by one

on electric conductivity, and the book concludes with a chapter of 20 pages on steel by Mr. Grossmann. This opens with a good discussion of the iron-carbon diagram, but it is unfortunate that no reference is made to delta iron. Then the alloy steels are taken up, briefly but interestingly.

As mentioned before, the keynote of the book is thoroughness. It is not easy to read, but needs careful study, which, of course, is true of most scientific books. However, it well repays the necessary effort and the earnest metallurgist is indebted to Mr. Grossmann for having made Professor Heyn's work available to American and English readers.

G. B. WATERHOUSE.

Labor Relations in Industry. By Dwight Lowell Hoopingartner. Pages 553, 5½ x 7 in. Published by the A. W. Shaw Co., Chicago. Price \$6.

This work differs from the numerous books on organization and labor in that it treats of industry in general, of the State in general, and of their mutual relations; and of plant organization only as far as it concerns the principles of those relations, and each worker as affected thereby. The author, who has been connected with organizations of employers, labor (which means "any old thing"), and the public, joined together in a common body to promote the good of all, claims to accept "the usual point of view" (which also means "any old thing") without neglecting the business angle.

The first chapter takes up the conscious demands of "labor"—whether organized or not, is not stated—the first of which demands is, very properly, continuously better status in life; the second, a greater share in the responsibility of the business enterprise (a demand which I have very seldom heard voiced), a greater share of the product of industry, improved (meaning fewer) work hours, improved conditions, insurance against unemployment; although nothing is said about insuring the demand for the product, and industrial insurance—a matter which the worker very often rejects as paternalism.

The chapter on fundamental economic considerations makes the very fine distinction that production is a means and not an end. While stating that there is great loss of money and effort in marketing the product, it claims that the industrial order is highly commercialized, which seems a contradiction. The desirability of a living wage for capital is dismissed in five lines; that of real wages for capital in sixteen.

The psychology of the worker is handled somewhat muddily, such phrases as "purposive intellect" being used, and it is claimed that industry does not permit the worker to give full or even reasonable expression to his intellectual life. The strange statement is made, page 44, that mental processes, in their broad sense, are fundamentally the same in all normal people. In other words, "orthodoxy is my doxy; heterodoxy is your doxy."

Among individualistic traits, the last one mentioned is the sense of fair play and justice; a sense that seems to have become atrophied.

In chapter V, five levels of control of human relations in industry are given: individual, arbitrary and sympathetic control respectively, by the employer, direct opposition or conflict on an organized basis, collective bargaining of the trading type, and cooperative management. Chapter VI is devoted to this last—which my experience has found highly non-successful, owing to the fact that "labor," and especially organized labor, shirks all responsibility. Cooperative working, an entirely different thing, is much more likely to succeed.

The author admits, page 70, that the interests of capital and labor are ultimately the same, and thinks that "inherently there is no eternal conflict between them." Chapter VII lays down the technique of cooperative management of labor relations. Seven meth-

ods are mentioned; some premised on organized labor, others not. Typical plans are described in detail; the establishments and lines of work being named; and in an appendix there is a very valuable bibliography of specific plans.

Chapter X is devoted to labor law and its interpretation; chapter XI to the principles of public control of labor relations. In the next chapter, among other matters relating to education and industrial control, it goes into the question of apprentice systems (as though there was much of any such nowadays); the three important problems being "to get apprentices permanently interested in and capable of doing the work, to get employers able and willing to give regular employment to the apprentices, and to secure the cooperation of the regular journeymen workers." The fact that in very many branches the number of apprentices is limited to one-fifth that of the journeymen is not mentioned.

In chapter XIII the first principle affecting the actual division of earnings between capital and labor is that no industry has the right to exist permanently that cannot either by itself or in connection with other industries and the community provide a living for its workers. The second fundamental law is that "the determination of a reasonable minimum wage should not be a question of bargaining power exercised either individually or collectively," being a question of fact in the light of human needs and the condition of the industry.

On page 233 eleven factors in settling the wage question are given; but three of the most important are omitted: the responsibility of the worker for life and property, the necessity of his being on hand at a given time every working day (although these are hinted at in Nos. 6 and 10), and the time and expense necessary for him to acquire his skill.

The advantages and the disadvantages of various wage payment methods are gone into quite thoroughly. Chapter XIV is devoted to profit sharing. The astounding statement is made (page 257) that this is not a gift, but a right; both economic and ethical. Many concrete examples of profit sharing are given, but nothing is said about loss sharing.

In chapter XVII we have the consideration of health and safety, with five general objectives, a very valuable section of the book.

Industrial housing is the subject of chapter XXII. The plant department of labor relations, personal analysis and scientific management are considered in order; then comes a most important chapter, that on labor loss. International labor relations and the need for international harmony have a chapter to themselves. A very valuable table, facing page 482, shows the progress of international ratifications in labor matters.

ROBERT GRIMSHAW.

Die Beweglichkeit Bindiger und Nicht Bindiger Materialien. By Prof. V. Pollack. Pages 139, 6 1/4 x 9 1/2 in.; illustrations 17; numerous tables. Published by Wilhelm Knapp, Halle (Saale), Germany.

The contents of this pamphlet, in true German professorial style (about half a page to the sentence), are a valuable contribution to the special literature of practical geology and mining. There are now, and have been in the distant past, three kinds of occurrences in temperate zones that have influenced the appearance and structure of the earth's surface layers. They are dislocation, weathering combined with removal and heaping up of large masses of material; and possibly the work of glaciers may be added thereto. The study of these influences is not only interesting to the geologist, but of practical value to the prospector and the miner.

In the study of the various movements of surface material, the author considers in order those affecting sand of various degrees of coarseness, both coherent and non-coherent, and the loam and clay class of coherent material. He goes into a very thorough investigation of the manner in which they flow, their angles of repose, etc.; examining them microscopically in order to show just how closely together the par-

ticles lie, in what manner they are grouped, and how they are bound together, if they are so. Interesting diagrams show the results of his experiments, where several kinds of material are allowed to flow simultaneously, with the result that the different components—with those of various degrees of fineness of particles as well as different specific gravity—arrange themselves in various layers and with different degrees of slope. In other words, the author has been world-building, or, at least, world surface building, in miniature.

The practical value of such experiments, and of their analysis and classification, is naturally, among other things, to guide the prospector for mineral deposits as to the probable position and general lie of the particular material of which he is in search.

Ship Model Making. By Capt. E. A. McCann. Pages 144, 6 x 9 in., illustrated. Norman W. Henley Publishing Co., 2 West Forty-fifth Street, New York. Price \$2.50.

Hobbies such as the making of model ships or boats are a far cry from the serious business of making or selling steel or products made from steel. Nevertheless the large interest of the past few years in the models of ships—models which are to be seen on all sides in stores and elsewhere—makes mention of such a book as this a matter of timely interest.

Two distinct types of ship are described here in some detail, with the method of making, kind of materials to use, method of fastening these together, the coloring and rigging of the ship, and useful guidance with regard to the tools required for this purpose. Short-cut methods are shown for many of the operations.

English-German Dictionary of Foundry Shop Terms

A German-English and English-German dictionary of shop terms used in the foundry industry has been published by the Association of German Iron Foundries (Verein Deutscher Eisengießereien), Düsseldorf, Germany. The dictionary is said to be the first to embrace the shop expressions commonly used in foundries, and is recommended as a useful handbook for the many foundrymen visiting German and English-speaking countries.

With the title "An Anniversary of Significance," the Armco Culvert and Flume Manufacturers' Association, Middletown, Ohio, has published a booklet commemorating 30 years use of the corrugated iron culvert. When J. H. Watson took out a patent in 1896 on a corrugated metal culvert, four general types of culvert were in use: the wooden box, cast iron pipe, vitrified clay pipe and stone masonry. For the Watson design sheets were corrugated, then formed into cylindrical shape and riveted. Puddled iron was used in the earlier years of the new culvert, but in 1906 the American Rolling Mill Co. and the manufacturers of the corrugated culvert joined forces, and that year marks the introduction of Armco ingot iron in culvert work. The tonnage so employed has now reached large proportions. Today, as for a number of years past, the Armco Culvert and Flume Manufacturers' Association is engaged in research and educational work.

"An Investigation of the Principal Properties of Some Nickel-Iron Alloys of the Invar Group" is the title of No. 13 of the engineering and science series published by the Rensselaer Polytechnic Institute, Troy, N. Y. The author is Eric Anders Blomquist. It was submitted to the faculty of the institute in partial fulfillment of the requirements for the degree of electrical engineer. The history and scope of the alloys as well as the procedure in making them are discussed, followed by a description and application of the apparatus used for determining the coefficient of linear expansion of the alloy at low temperatures.

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The Story of the Cutting Flame

INTERESTING to the metal trades from several angles is the acetylene industry, whose convention at Chicago we report on another page. Its development has been fairly romantic. The discovery of a commercial method of making calcium carbide (which moistened with water gives off acetylene) was made quite by accident in the midst of a vain search for a means of producing aluminum.

Such a new substance could not be promoted into a commercial undertaking immediately. In fact, some ten years elapsed before it became apparent that the new gas was most useful, not to enrich natural gas (as was at first proposed), but to light isolated houses and buildings. Carl Fisher then worked with it for automobile headlights; but 20 years ago the characteristics of the gas were not well known and the result was that his plants were destroyed by fire or explosion about as fast as he could build them. But with the greatest perseverance and in the face of almost insuperable financial obstacles, he pushed on. His success profoundly influenced the whole good roads movement. It made night driving possible, and for this reason the automobile became a useful machine instead of a mere pleasure car. Acetylene's influence did not wane with the introduction of electric starters and lights—it is seen today flashing warning signals at every dangerous turn and crossroad.

However, in the welding and cutting process (a development of the last 20 years) is the steel industry's contact most intimate. It is estimated that no less than 200,000 oxy-acetylene blowpipes are in use in the country today. Only a small fraction of the acetylene manufactured is used for repairing broken and worn machine parts, yet one speaker at the acetylene convention estimated that the savings in money and time, in comparison with what would be required to install new repair parts, amount to well over a half billion dollars a year.

In the face of such achievements, the welder's enthusiasm may be understood when he predicts that many manufacturing processes will be profoundly affected by his art in the next decade.

Steel castings manufacturers certainly have profited greatly by the cutting flame—it has solved for them the harassing problem of cutting heavy and awkward risers and sinkheads.

It is not necessary to dwell upon the possibilities of acetylene from a chemical standpoint. Enough has been said to outline a very good picture of the ramifications in industry which have followed from a chance discovery—a by-product of an unsuccessful metallurgical research. Perhaps we should not call the search for metallic aluminum a failure, when a by-product of that search has done so much to light the homes, the mines, the highways and the harbors of our country; has had such an intimate and important influence on the entire development of our automotive industry and the good roads movement, and finally has well-nigh revolutionized the jobbing repair shop and the maintenance of machinery.

Breadth of Steel Demand

AS noted in our market summary last week, the official steel ingot figures showed an increase in October over September, whereas various definite statements in the trade had indicated that production was decreasing. Such divergence is no new phenomenon. Often this year the actual report has shown a larger tonnage than was expected. One suggestion, offered in partial explanation, is that some mills are disposed for prudential reasons to digress on the lower side in speaking of the degree of tonnage prosperity they are enjoying. That is human, considering the manner in which the steel price structure is maintained, but there are other human elements. The observer often cannot divest his mind of the impressions of the old days, when it was the regular thing for the steel industry to put up a bold front. Orders, contracts and specifications depended largely on "confidence." Buyers had a leeway, both in their stocks and in the obligations they had assumed for forward delivery, and any disturbance would be followed promptly by decreased production and shipments.

Information that "a turn" had come broke out

suddenly and an earnest desire was created to foresee such turns. This habit continues more or less. We hear much about hand-to-mouth buying and are quicker to think that this will prevent rapid increases in production than to think it will prevent rapid decreases, yet the latter is perhaps the clearer deduction.

Judgment of the situation is apt to be swayed also by "records," which of late have been, so to speak, qualitative rather than quantitative. Last year's steel ingot production was "record," but 1917 and 1923 were exceeded by quite insignificant amounts. After all, it does not mean very much that the first ten months of this year ran ahead of last year by 10 per cent, "on top" of last year being a record year. The ten-month rate was only 10½ per cent above the average rate in 1923, three years ago, and only 58 per cent above the rate in the best pre-war year, 1912, 14 years ago.

Consuming requirements normally grow year by year with increase in population and improved methods of putting steel into use. As far back as 1922 it was much remarked, by older members of the trade, that there was a far larger production of steel than the country's general activity seemed to warrant. Some of these observers doubted whether all the steel was actually being absorbed, or whether the pace could be continued; but we should learn that year by year it is easier to absorb steel. The unusual tonnage of one year will become in time normal or even minimum.

Personnel Activities Fewer

IN its latest field survey of personnel activities in industry, the Bureau of Labor Statistics discovered that parks and recreation grounds for employees, maintained at manufacturing plants, are rapidly disappearing. At more than half of the establishments in which the bureau found them in its previous survey they have been abandoned, chiefly since shop baseball teams have been given up because owners refused further money support.

"In the establishments having baseball teams," says the report, "it gradually developed that the foreman was so interested in having his factory team beat the other factory team that he kept on his payroll men whose value was largely their ability to play baseball." To the foreman might be added the superintendent, and in some cases those higher up in the management. The loyalty of the average man to his place of employment seems often to weaken the ambition to produce the maximum of goods and to create in its place the ambition to win ball games.

The finding of the Bureau of Labor Statistics is significant of a change in personnel activities which has gone far beyond the one item of the support of athletic teams. Certain phases of this type of effort are still considered profitable for all concerned, such as the works hospital and dispensary, educational classes, the visiting nurse, mutual benefit associations, credit unions, children's playgrounds, perhaps, where conditions demand them, and tacit encouragement of social activities such as bowling tournaments, dances and entertainments. Generally speaking, any personnel work is questionable which brings the thought to the minds of

employees that money so spent might better come to them through the pay envelope.

There are exceptional cases of course. Where a plant is located in a small town or village, at more than convenient visiting distance from a large center, and where the workers must find their recreations and amusements within their own little community, then money spent to prevent lonesomeness and the discontent it may breed should prove a good investment. The clubhouse and recreation hall, the baseball team and like efforts may be necessary, even if they cost a good deal. Such instances are not numerous, relatively speaking.

The costly effort to keep working forces filled up and to reduce labor turnover by means of personnel activities, which swept over the country during the war and in the period just following, will not be revived in this generation. It was proved that in many cases the effect was to pull down rather than to build up morale.

Many Minds on Taxation

THE President's proposal to give us a 12½ per cent reduction of this year's taxes for the reason that the Treasury had collected more money than was needed aroused pleasant expectations in our breasts; for it seemed to be so simple and reasonable that Congress might be expeditious in enacting the legislation necessary before Dec. 15.

But not so. Congress is not going to do any such thing. When we are thus disappointed we are wont to berate the incompetence and stupidity of Congress. We should rather think, however, that Congress represents a great many people with widely different ideas.

In the matter of taxation, for example, the rational idea is that it is a necessary method of providing the expenses of government and should be as equitable as possible. The other big idea, politically, is that it should be punitive of those citizens who have committed the crime of being very successful materially.

The spirit behind the latter idea is often ugly. More naive is the agrarian idea, whose exponents say that the farmers are so poor that they do not pay any Federal taxes anyhow, wherefore reduction thereof is no concern of theirs, and why should they help to hand anything back to the corporations and rich men?

EXTENSION of the term of protection is proposed on patents issued to persons while they were in the service of the armed forces of the United States. Sentiment for a measure of the kind has been strangely inarticulate, but some part of Congress has evidently proved responsive to a small voice. Indeed it has shown itself so solicitous that a bill promptly and favorably reported on the day of adjournment of the last session—bill S-4480—would extend the life of patents issued to the selected group for periods equal to three times the length of the patentee's war-time service. The American Patent Law Association was given no opportunity to be heard in committee, and thus it is hard to avoid the belief that some special case is responsible for the cloak of beneficence. A self-seeking interest in the nature of the case would

escape notice in the unanimous desire to seize another opportunity to pay debts to the nation's defenders. Therefore a little airing could do no harm.

Paying for the War

DURING the war thinking men had no doubt that afterward it would have to be paid for, referring not to payments by governments in liquidating their war obligations, but to losses to society by the destruction of property, by suspension of useful production, and by general dislocation.

Some had the thought that as to the United States at least there would be a relatively brief period of active times, inflation and excesses, and then a longer period of "hard times" during which people would have to work very hard and economize severely. Eight years after we see that this was not the way. People are working more efficiently than in 1919 and 1920; but few are likely to contend that any are really working harder, and as to economizing, the meaning of the term would have to be stretched to make it apply.

In many ways individuals have had to pay, and pay dearly, for the dislocations of the war. Take building construction. It has cost altogether more than it should cost, all because construction work was thrown in arrears and building trades artisans and others squeezed all they could out of the opportunity the war had created for them. Everybody has had to pay, those who built dwelling houses most directly, those who rented somewhat less directly, others in more circuitous manner. There has been waste of time and energy by the employees of the building trades, and that is opportunity gone forever. Billions of dollars of value have been lost since 1918 through this dislocation produced by the war.

The coal miners were pampered during the war, and a year after the Armistice they were pampered again. There have been enormous losses of time and energy of coal miners in these recent years, during which many men were either on strike or were out of employment because they had forced the adoption of wage scales which could not be paid. There was economic loss on two heads, by idleness

of miners and by investments in mining capacity that the country as a unit did not need.

In various industries the profits of the past few years have not been what they would have been had pre-war relations between capacity and requirements been preserved. The steel industry's earnings have not been at all commensurate with the value of its investment. It has paid high wages, in recognition of the high cost of living, while it has received relatively low prices, and it is impossible to see that the consumers of steel have been better off than they would have been had they paid the slightly higher prices that would have afforded the steel producers a fair return.

Within the steel industry, indeed, there is a plain illustration of dislocation produced by the war. Of all commercial steel products the greatest demand was for plates, but price statistics show that, while for years before the war the market price of plates averaged about \$2 a ton above the market price of merchant bars, for more than two years past plates have been at least \$2 a ton under bars.

Even after the lapse of eight years we are not through with these economic losses and faulty distributions. Many men are still unwilling to work as they should and as others do. The general public is still paying for the war's economic disturbances.

SO much has been said about the new steel ingot record already assured for this year in the United States that the performance in pig iron has been overlooked. Indications now are that the output of our blast furnaces will put 1926 second or third in the list of great pig iron years. In the first ten months of the year 32,742,703 gross tons of coke iron was made, according to our blast furnace returns. Assuming that the coke iron production for November and December is 3,274,300 tons for each month, this being the 1926 monthly average to Nov. 1, the year's total of pig iron and of manganese alloys will be about 39,450,000 tons (estimating charcoal iron at 160,000 tons). This is about 900,000 tons less than the high record of 40,361,000 tons in 1923. As the figures now stand, two war years rank second and third in pig iron production—1916 with 39,434,797 tons and 1918 with 39,054,644 tons.

Philadelphia Steel Club Elects Officers

Frank W. Jones, Philadelphia district sales agent for the Eastern Steel Co., Pottsville, Pa., was elected president of the Steel Club of Philadelphia last week. John B. De Wolfe, district sales agent for the Trumbull Steel Co., was elected vice-president, and Frank J. Krause of Bethlehem Steel Co. is secretary-treasurer.

Philadelphia Company in Receivership

A receivership for the F. R. Phillips & Sons Co., Pennsylvania Building, Philadelphia, has been asked for. The application was made by W. Vernon Phillips, president. The company has been engaged in the importing and exporting of steel products since 1898, but has been a corporation only since 1917. The assets were stated to be \$240,000 and the liabilities \$190,000. Most of the assets are in the form of bills receivable which the company has been unable to collect, it was

stated to the court. W. Vernon Phillips is president, John J. H. Phillips is vice-president and secretary, Waldo L. Phillips is assistant treasurer and Charles W. Hunt, assistant secretary. If a receiver is appointed the business will be liquidated.

Pig Iron Rates Not Yet Cancelled

WASHINGTON, Nov. 16.—The statement in THE IRON AGE of Nov. 11, page 1357, that the railroads have cancelled tariffs proposing increases and decreases in rates on pig iron in Central Freight Association territory is incorrect. At the offices of the Interstate Commerce Commission today it was declared no application had been received from the railroads to cancel the tariffs under suspension from Nov. 1 to March 1. It is necessary for carriers to obtain the approval of the commission before they can cancel tariffs that have been filed. It is reported, however, that the railroads will ask for cancellation of the rates and seek to adjust them by conference with shippers.

CORRESPONDENCE

Echo of International Foundry Congress

To the Editor: I can say with all sincerity that I enjoyed my American trip, and am already looking forward to an opportunity of repeating it. The information I obtained, the lessons I learnt, and the acquaintances I made, have been and will be of the greatest possible interest and benefit, and I should be very happy indeed if you would publish this letter on behalf of the Refractories Association of Great Britain and myself as a token of appreciation of the friendly manner in which the whole of our party of delegates were received.

I am looking forward to reading through the whole of your issues which have accumulated on my desk, but I should like to say how much I admire and appreciate the enterprise with which your publication is conducted, and the finish and legibility, which make it so acceptable and easy to read.

FRANK RUSSELL.

Workshop, England

More on Steel Frame Houses

To the Editor: Your recent series of articles on the several types of steel structural materials suitable for the small house, now being tried out in England and America, have been very interesting and instructive. You have made it plain that the interchangeable unit-type steel frame has certain advantages in being able to meet the varying demands of owner or architect in size and shape of building; and also in the possibility of low cost, when the demand for them justifies mass production.

It has occurred to me that in meeting the demand for more fire resistive construction there is a possibility of a wide field for development of a steel and gypsum partition tile. If a number of gypsum partition tiles were bound together by a steel frame into a single panel, with provision for attaching the panels to each other and to other members of the structure, a very convenient building unit would be produced.

The frames hinged at one corner and closed by a bolt or pin at opposite corner would be provided by the manufacturer of the other steel structural material. The gypsum tile (tongued and grooved) would be supplied by the gypsum producer; and both carried in stock by the supply dealer. The panels would be assembled under factory conditions in the shop of the contractor or supply dealer and delivered to the job with window frames, door frames and other shop work. The building would be erected with the same class of labor and with the same speed that is to be expected of the interchangeable unit-type of all steel construction.

The fact that hollow gypsum partition tile ranks very high as an insulator of heat and sound and that in case of rearrangement of walls or razing of the building these panels would have practically 100 per cent salvage value would add to their desirability as building material. These panels would form a suitable base for interior plastering or could be wall-papered direct. The exterior walls could be protected by brick veneer, or the building could be finished in Portland cement stucco by attaching to the exposed surface of panels metal lathing suitable for a stucco base.

One of the articles widely used in the recent fire-prevention week stated that in face of half a billion dollar annual fire loss America continues to spend a billion dollars per year for buildings in which both exterior and interior walls are exclusively of wood. The reason for this is not to be found solely in the higher cost of non-inflammable wall materials. Witness the willingness of the home builder to invest in heavy brick porch columns and to brick veneer a wooden shell, which gives him a building little better than all wood at a cost practically the same as solid masonry construction.

The cost of steel building material is moderate and

may possibly decrease. No special skill or expensive plant would be required for assembling the panels. Gypsum tile can be cut and bored with ordinary carpenter tools. The rock from which it is produced is of little value in its native hillside; is very widely distributed, and the supply is as nearly inexhaustible as lime or clay. The idea of a building unit such as I have described is original with me and so far as I know has not been used in actual practice. I realize that the idea is in very crude form and that it will require much experimenting and development work to bring it into practical use; but it is possible that the suggestion contains a germ from which a big forward step in building construction might evolve.

If you are in position to lay the suggestion before some individual or organization that would be interested in developing it, you are at liberty to do so.

The idea that in this age wood is no longer a suitable material for general construction work is coming; and when the time comes that the average building supply dealer carries a stock of incombustible building materials from which semi-skilled labor and the ordinary building mechanic can assemble a satisfactory building, the idea will have arrived.

J. V. MONTRIEF.

Wichita Falls, Texas.

Melting Steel Scrap in the Cupola

To the Editor: Since the last convention of the American Foundrymen's Association, it has developed that many foundrymen have either "discovered" or applied to their daily practice the method of melting large proportions of steel scrap in their cupolas, with obvious advantages.

In converter practice, the use of low phosphorus pig iron was always considered a hindrance, and years ago we began a series of experiments tending toward the elimination of this pig iron. These experiments culminated in an application for patent, on June 25, 1917, the patent being subsequently granted on April 6, 1920, to George M. Muntz and Etienne M. Roubieu and assigned by them to this company. The specifications of this patent, U. S. No. 1,336,256, would, we believe, make interesting food for thought for your readers.

Notwithstanding many claims to the contrary, the melting of all steel charges in a cupola, or the production of so-called synthetic pig iron, was never carried on successfully and continuously prior to 1917, and the method described in full in our patent will be found to have been paralleled by all present preconizers of cupola steel scrap melting.

It may be of interest to your readers, also, to hear of some of the peculiar things we encountered. The original experiments were carried on in a cupola of only 12 in. diameter inside of the lining. Success in such a small cupola precluded any doubt of success in the larger commercial size furnaces, and this was amply borne out in practice.

All sorts of steel scrap were melted in our little cupola, starting with old horseshoes and other sundry denizens of the back yard scrap pile, and as a substitute for golf and other forms of mild sports we have never found a more fascinating game than that which we encountered in taming our baby cupola. Many strange things happened in the course of our experiments, but the strangest was on the day when our charges "arched" and we actually tapped steel from the cupola. The product was forgeable and weldable and the analysis proved it to be steel.

We repeatedly tried to reproduce the "accident" on a commercial scale, but to this day we have failed in our attempt to obtain liquid steel in any commercial quantity direct from the cupola. Time and opportunity have been lacking of late years to continue experimenting along these lines, but we recommend the "possibility" as one worthy of attention to our "up and coming" young foundrymen.

Meanwhile, it may be a good idea to give us a little credit for the work accomplished, and we thought that perhaps you might not be averse to doing so.

GEORGE MUNTZ.

New York, Nov. 1.

President Tropenas Co.

Iron and Steel Markets

Steel Output Less, Pig Iron Quieter

Fuel Outlook Still Has Uncertainties—Some Sagging in
Sheets—More Activity in Railroad Equipment—
Orders for Lake Shipyards

STEEL consumers so well provided for their wants in their September and October buying, that no considerable new demand is looked for in the next few weeks. Operations also promise some curtailment with the approach of the year end. Rolling mill schedules are slightly less this week. With a corresponding reduction in ingot output, steel works in the Pittsburgh and nearby districts are running at 70 to 75 per cent of capacity. Steel Corporation subsidiaries are averaging somewhat less than 80 per cent.

As heretofore, steel production and steel prices are little affected by the speculative shifts in coal, but the week's developments in the latter are far from clearing up the uncertainties regarding pig iron and coke for the first quarter of 1927.

While coal reacted after a fortnight's excited buying, the past few days have brought little further change. It is recognized that stores here must be replenished and that foreign bunkers must be filled pending fuller resumption in Great Britain. Furnace coke has declined 50c. in the week. On the one hand is the view that the maintenance of the advance to the union wage scale will stabilize fuel prices. Against this it is urged that the present wages cannot be maintained, and if not, that both coke and pig iron will be affected.

The pig iron market rather promptly fell into quietness as the end of the British coal strike came clearly in sight. Seeing that the coal flurry and the possibility of higher coke put up pig iron, buyers of the latter looked for easier prices under the changed fuel situation.

With the strike settled, it is expected that British inquiries in this market for several thousand tons of low-phosphorus pig iron will be withdrawn.

In general, specifications on finished steel are coming to the mills in good volume, apart from consumers whose operations are dependent on automobile plants. Bolt and nut manufacturers have cut down their bar and wire orders to the extent that their business with motor car works has fallen off.

In railroad equipment there is more activity in the West, both in inquiry and awards. The Chicago & North Western has bought underframes and superstructures for 500 cars and the Pacific Fruit Express has placed 600 underframes with a Pacific Coast builder. The Rock Island has asked bids on 2500 freight cars. The Santa Fe Railroad has ordered 41 locomotives and the Seaboard Air Line 25 from a Philadelphia works, and other orders

bring the total to 93 in the week. All are for domestic roads except 13 for Brazil.

Sheet mill operations have fallen below 80 per cent. October sales, as reported by the independent sheet manufacturers, amounted to 212,029 tons, or less than half of the September bulge in bookings. Sales since the middle of the year are 10 per cent ahead of those for the corresponding period of 1925. Output of sheets in October, while large at 314,598 tons, still leaves a margin of 3 to 4 per cent under orders, and brings shipments (301,474 tons in October) and production close to a parity.

Farmer buying of wire products is slow. The automobile industry is taking little in the way of spring wire and specialties, and jobbers naturally are not adding to their stocks at this time of year.

Structural steel contracts in the week totaled about 25,000 tons, against a recent weekly average of 21,700 tons and an average so far this year of 29,000 tons. Fabricating shops have caught up on orders, however, and are more anxious for tonnage than at any time in months, some contracts being taken at the expense of prices.

Two ore boats just placed by the Steel Corporation with Lake shipyards will take 10,000 tons of plates and shapes, and other boat orders are looked for for next season's delivery.

After many weeks' delay, the 10,000 tons of cast iron pipe for New York City, on which a German foundry made the low prices, has been awarded to domestic bidders.

Producers of 50 per cent ferrosilicon have begun to quote \$85, the present price, as the basis for 1927 delivery. British ferromanganese is offered at \$100 for first half, but consumers, in view of the three-cornered home competition early in the year and its low prices, are not ready to commit themselves for the new year.

While signs of softness in the European steel market have appeared, foundry pig iron has advanced about 50c. to \$19.35 per gross ton at Antwerp. German railroads have placed 800,000 tons of rails in Germany and have taken an option on 160,000 tons with Polish mills.

Due to a decline in foundry iron at Buffalo, THE IRON AGE pig iron composite price has dropped to \$20.13, from \$20.21 last week. This is the first recession since the low price of the year, \$19.46, was reached in mid-July.

The finished steel composite remains at 2.453c. per lb. for the sixth week. This is the high level of the year.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous
For Early Delivery

Pig Iron, Per Gross Ton:	Nov. 16, 1926	Nov. 9, 1926	Oct. 19, 1926	Nov. 17, 1925
No. 2 fdy., Philadelphia...	\$23.26	\$23.26	\$21.76	\$23.26
No. 2, Valley furnace.....	19.00	19.00	18.50	20.50
No. 2, Southern, Cin'tl.....	23.69	23.69	23.69	24.69
No. 2, Birmingham, Ala....	20.00	20.00	20.00	21.00
No. 2 foundry, Chicago*....	21.00	21.00	21.00	23.00
Basic, del'd, eastern Pa....	23.00	23.00	20.50	22.50
Basic, Valley furnace.....	18.50	18.50	18.00	20.00
Valley Bessemer del'd P'gh	21.76	21.76	20.76	22.76
Malleable, Chicago*.....	21.00	21.00	21.00	23.00
Malleable, Valley.....	19.00	19.00	18.50	20.50
Gray forge, Pittsburgh....	20.26	20.26	19.76	21.76
L. S. charcoal, Chicago....	27.04	27.04	27.04	29.04
Ferromanganese, furnace.	100.00	95.00	88.00	115.00

Rails, Billets, etc., Per Gross Ton:	Nov. 16, 1926	Nov. 9, 1926	Oct. 19, 1926	Nov. 17, 1925
O.-h. rails, heavy, at mill.	\$43.00	\$43.00	\$43.00	\$43.00
Light rails at mill.....	36.00	36.00	36.00	36.96
Bess. billets, Pittsburgh...	35.00	35.00	35.00	35.00
O.-h. billets, Pittsburgh...	35.00	35.00	35.00	35.00
O.-h. sheet bars, P'gh.....	36.00	36.00	36.00	36.00
Forging billets, base, P'gh	40.00	40.00	40.00	40.00
O.-h. billets, Phila.....	40.30	40.30	40.30	40.30
Wire rods, Pittsburgh....	45.00	45.00	45.00	45.00
Skelp, gr. steel, P'gh, lb...	1.90	1.90	1.90	1.90

Finished Iron and Steel, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	2.22	2.22	2.22	2.22
Iron bars, Chicago.....	2.00	2.00	2.00	1.95
Steel bars, Pittsburgh...	2.00	2.00	2.00	2.00
Steel bars, Chicago.....	2.10	2.10	2.10	2.10
Steel bars, New York....	2.34	2.34	2.34	2.34
Tank plates, Pittsburgh...	1.90	1.90	1.90	1.90
Tank plates, Chicago....	2.10	2.10	2.10	2.10
Tank plates, New York...	2.24	2.24	2.24	1.94
Beams, Pittsburgh.....	2.00	2.00	2.00	1.90
Beams, Chicago.....	2.10	2.10	2.10	2.10
Beams, New York.....	2.34	2.34	2.34	2.24
Steel hoops, Pittsburgh...	2.50	2.50	2.50	2.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	Nov. 16, 1926	Nov. 9, 1926	Oct. 19, 1926	Nov. 17, 1925
Sheets, black, No. 24, P'gh	3.00	3.00	3.00	3.15
Sheets, black, No. 24, Chi-	3.20	3.20	3.20	3.30
cago dist. mill.....	3.85	3.85	3.85	4.05
Sheets, galv., No. 24, P'gh	4.05	4.05	4.05	4.15
Sheets, galv., No. 24, Chi-	2.30	2.30	2.30	2.40
cago dist. mill.....	2.50	2.50	2.50	2.50
Wire nails, Pittsburgh...	2.65	2.65	2.65	2.65
Wire nails, Chicago dist.	2.70	2.70	2.70	2.70
Plain wire, Pittsburgh....	2.50	2.50	2.50	2.50
Plain wire, Chicago dist.	2.55	2.55	2.55	2.55
Barbed wire, galv., P'gh...	3.35	3.35	3.35	3.35
Barbed wire, galv., Chi-	3.40	3.40	3.40	3.40
cago dist. mill.....	\$5.50	\$5.50	\$5.50	\$5.50
Tin plate, 100 lb. box, P'gh				

Old Material, Per Gross Ton:	Nov. 16, 1926	Nov. 9, 1926	Oct. 19, 1926	Nov. 17, 1925
Carwheels, Chicago.....	\$14.50	\$14.50	\$14.50	\$18.50
Carwheels, Philadelphia...	16.50	16.50	17.00	18.50
Heavy melting steel, P'gh	17.00	17.50	17.50	19.50
Heavy melting steel, Phila.	15.50	15.50	16.50	17.50
Heavy melting steel, Ch'go	13.00	13.00	13.00	16.00
No. 1 cast, Pittsburgh....	16.50	16.50	16.00	18.00
No. 1 cast, Philadelphia...	17.50	17.50	17.50	18.00
No. 1 cast, Ch'go (net ton)	16.00	16.00	16.50	18.25
No. 1 RR. wrot., Phila....	17.00	17.00	17.00	18.50
No. 1 RR. wrot. Ch'go (net)	12.50	12.50	12.75	15.75

Coke, Connellsville, Per Net Ton at Oven:	Nov. 16, 1926	Nov. 9, 1926	Oct. 19, 1926	Nov. 17, 1925
Furnace coke, prompt....	\$4.25	\$4.75	\$3.50	\$5.00
Foundry coke, prompt....	5.50	6.00	4.50	6.00

Metals, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	14.00	14.12½	14.25	14.62½
Electrolytic copper, refinery	13.62½	13.62½	13.87½	14.37½
Zinc, St. Louis.....	7.25	7.20	7.25	8.45
Zinc, New York.....	7.00	7.55	7.70	9.30
Lead, St. Louis.....	7.50	7.80	8.10	9.50
Lead, New York.....	8.00	8.00	8.35	9.85
Tin (Strait), New York...	71.00	70.75	70.50	63.62½
Antimony (Asiatic), N. Y.	13.25	13.25	14.25	20.00

Pittsburgh

Steel Buying Shows Progressive Decline —Fuel Prices Continue to Slide

PITTSBURGH, Nov. 16.—Steel buying continues to taper, because consumers generally are engaged in absorbing inventories somewhat swelled by the heavy rate of deliveries last month, and are able to get along with a minimum of new supplies. Finishing mill operations are lower, and this has entailed some further adjustment of ingot production, which in this and nearby districts is now estimated at between 70 and 75 per cent of capacity. The estimates, based upon the reports of individual companies, are more apt to err on the lower than the higher side because of the danger of misinterpretation by competitors. Production of ingots in the Youngstown district this week is virtually the same as it was last week, but there has been some loss in the other parts of greater Pittsburgh area and apparently a further recession is expected, as steel companies either are holding up scrap shipments or urging lighter deliveries against orders. The important fact of the situation is that business and plant operations have not reached such a low point that producers are anxious for orders to the point of making price concessions.

Prices are making a favorable showing, considering the rapidity of the decline in the orders from the automotive industry and the fact that there is not yet any sign of recovery in demand from that direction. Railroad business is filtering in, but in no such volume as had been hoped in view of the lack of real car business

since the early part of the year. Wire and pipe have given more ground so far as sales are concerned, and buyers seem to be in no hurry to commit themselves on sheets and tin plate for the first quarter and first half of next year, although independent makers generally have followed lead of the American Sheet & Tin Plate Co., in opening books for those periods. October sheet sales by the independent mills were less than half those of the month before, and there was a sharp drop in unfilled orders. Buyers generally are conservative, and the growing belief is that this month and next will see a gradual decline in business.

A further slump in the coal market, which has brought prices to levels little more than half those at the height of the boom three weeks ago, has thrown doubt on the maintenance of the recent wage increase to the miners and coke oven workmen and naturally has strengthened the idea that pig iron producers will have difficulty in passing on the increased cost of coke brought about by the wage increase.

Pig iron buyers are holding off and, while small tonnages are moving at or near the advance of two weeks ago, the test of large tonnage inquiries is absent. Coke has slipped off 50c. a ton from the level of a week ago both on furnace and foundry grades. There is a lack of confidence in the stability of the fuel market. Recent coal prices are now regarded as the result of what approached hysteria and the wage advance, as a step that was taken without due thought for its ultimate effect.

Pig Iron.—Getting iron consumers interested in supplies at the prices that merchant producers think themselves entitled to on the basis of higher coke costs is as difficult, if not more, than it has been, because of the

developments of the week in the coal and coke market. With fuel prices slipping rapidly, there has come the belief that the present scale of wages will not be maintained and that such a change would mean a modification of asking prices on pig iron. Important consumers, consequently, are disposed to await developments. There is no occasion to change prices on Valley iron from those of a week ago, except that on basic iron \$19 is as high as any furnaces are now asking. While sales are noted at that figure, the amounts are well under what are ordinarily considered as making a market. The most recent sizable lot of this grade was 2000 tons, and the price was \$18.50, Valley furnace. Similarly, small lots of Bessemer iron have been sold at \$20.50, Valley furnace, but for delivery between now and the end of the year that grade can still be had at \$20. Users of foundry grade who either are used to a particular brand of iron or are indisposed to waste the time of canvassing the market have paid \$20, Valley furnace, for No. 2 iron, but the total of all such sales would not amount to a fortnight's melt of some of the larger consumers of the district. The large-lot price may still be regarded as \$19.

We quote Valley furnace, the freight for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic	\$18.50 to \$19.00
Bessemer	20.00 to 20.50
Gray forge	18.50 to 19.50
No. 2 foundry	19.00 to 20.00
No. 3 foundry	18.50 to 19.50
Malleable	19.00 to 20.00
Low phosphorus, copper free....	28.00

Ferroalloys.—Domestic producers of ferromanganese late last week opened books for the first half of 1927 and named a price of \$100, furnace, with freight equalized from the seaboard. This meets the price named by British producers a week before. No business of consequence has yet developed, the explanation for which is found in the fact that consumers have been taking maximum quotas under their contracts and, being well supplied, can take their time about ordering for next year. Moreover, the price of \$100 is being made with a guarantee against a decline, which consumers regard as an indication of uncertainty about the maintenance of the price. With the settlement of the British coal strike, British producers will be able to ship to this country in 1927, and they will have to contest for the American business lost last year. The principal producer of spiegeleisen has no 16 to 19 per cent material to sell for shipment during the remainder of the year, and is naming \$40, furnace, on 19 to 21 per cent for that delivery. It has not yet opened its books for next year's business. The price of \$40, which represents a total recent advance of \$6 a ton, is based on the higher coke costs and the advance in pig iron. Makers of 50 per cent ferrosilicon continued this year's contract price of \$85, delivered east of the Mississippi, on 1927 business in opening their books last week.

Semi-Finished Steel.—Tapering activities of finishing mills find full reflection in the demand for the

various forms of semi-finished steel. There has been some increase in the orders for strips, but immediate delivery is not required and mill operations are still low. That affects the call for billets and slabs. With no increase in the demand for automobile sheets and lighter specifications in the common finishes, sheet mill operations continue to decrease, and this tells on the requirements in sheet bars. Tin bars are moving well, as the makers who buy their bars are as busy as those who make their own steel. The call for wire and tubular products is slipping, and there is less urgency to the demand for rods and skelp. Prices are holding, however, because production is being pared off in keeping with demand. Ingot production in the Pittsburgh-Youngstown-Wheeling-Johnstown area is now estimated at between 70 and 75 per cent of capacity, but is probably nearer the higher than the lower figure.

Steel and Iron Bars.—Most makers of steel bars, particularly those serving producers of cold-finished steel bars, need orders. Heavy specifications against unshipped third quarter tonnages late in September provided consumers with good supplies at a time when consumption was falling, and obviated the necessity of much additional buying. Mill order books were heavily reduced in October, and this month's mill operations have been down around 70 to 75 per cent, against 90 per cent last month. Although the desire for business is strong, it has not reached the price-cutting stage. Large-tonnage buyers are paying 2c., base Pittsburgh, for the small lots they are buying, but small-lot buyers do not have to pay more. The test of 2c., base, as a minimum to the tonnage buyers has been deferred by the liberal supplies of 1.90c. bars that became available through acceptance by the mills of so much third quarter business as that period was ending. Iron bars are slow and barely steady.

Structural Steel.—Steel fabricating companies are well supplied with, or protected on, plain material in relation to the amount of business they are getting, and structural steel sales and mill operations are lighter than they have been. Delivery of fabricated steel in time to permit the starting of erection by Dec. 15 was promised on some jobs in this territory recently. There is also more competition in prices than was true a short time ago. The mills, however, are holding firmly to 2c. base Pittsburgh, on large structural shapes.

Plates.—Railroad car business is in moderate volume, but local mills are profiting by what little is being placed. Pittsburgh mills will furnish the 14,000 tons of rolled steel required for 1200 tank cars recently placed with the Standard Tank Car Co., and between 1000 to 1500 tons for repairs to 500 Buffalo, Rochester & Pittsburgh cars by the Pressed Steel Car Co. Oil storage tank business is providing some plate business. A recent order for the Prairie Oil & Gas Co., Seminole, Okla., calling for eight 55,000-bbl. tanks, was placed

THE IRON AGE Composite Prices

Finished Steel Nov. 16, 1926, 2.453c. Per Lb.

One week ago.....	2.453c.
One month ago.....	2.453c.
One year ago.....	2.439c.
10-year pre-war average.....	1.689c.

Based on steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 87 per cent of the United States output of finished steel.

High		Low	
1926	2.453c.	Jan. 5:	2.403c., May 18
1925	2.560c.	Jan. 6:	2.396c., Aug. 18
1924	2.789c.	Jan. 15:	2.460c., Oct. 14
1923	2.824c.	April 24:	2.446c., Jan. 2

Pig Iron Nov. 16, 1926, \$20.13 Per Gross Ton

One week ago.....	\$20.21
One month ago.....	19.71
One year ago.....	21.55
10-year pre-war average.....	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

High		Low	
1926	\$21.54,	Jan. 5:	\$19.46, July 13
1925	22.50,	Jan. 13:	18.96, July 7
1924	22.88,	Feb. 26:	19.21, Nov. 3
1923	30.86,	March 20:	20.77, Nov. 20

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills.....	2.00c. to 2.10c.
F.o.b. Chicago.....	2.10c.
Del'd Philadelphia.....	2.32c.
Del'd New York.....	2.34c.
Del'd Cleveland.....	2.19c.
F.o.b. Cleveland, sizes up to 1-in. rounds.....	2.00c.
F.o.b. Birmingham.....	2.15c. to 2.25c.
C.i.f. Pacific ports.....	2.35c.
F.o.b. San Francisco mills.....	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills.....	2.00c. to 2.10c.
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Roll Steel

F.o.b. mill.....	1.80c. to 1.90c.
F.o.b. Chicago.....	2.00c.

Iron

Common iron, f.o.b. Chicago.....	2.00c.
Refined iron, f.o.b. P'gh mills.....	3.00c.
Common iron, del'd Philadelphia.....	2.22c.
Common iron, del'd New York.....	2.24c.

Tank Plates

Base Per Lb.

F.o.b. Pittsburgh mill.....	1.90c.
F.o.b. Chicago.....	2.10c.
F.o.b. Birmingham.....	2.05c. to 2.15c.
Del'd Cleveland.....	2.09c.
Del'd Philadelphia.....	2.22c.
Del'd New York.....	2.24c.
C.i.f. Pacific ports.....	2.30c.

Structural Shapes

Base Per Lb.

F.o.b. Pittsburgh mill.....	2.00c. to 2.10c.
F.o.b. Chicago.....	2.10c.
F.o.b. Birmingham.....	2.15c. to 2.25c.
Del'd Cleveland.....	2.19c.
Del'd Philadelphia.....	2.22c. to 2.32c.
Del'd New York.....	2.24c.
C.i.f. Pacific ports.....	2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

Base Per Lb.

All gages, narrower than 6 in., P'gh.....	2.50c.
All gages, 6 in. and wider, P'gh.....	2.30c.
All gages, 6 in. and narrower, Chicago.....	2.60c.
All gages, wider than 6 in., Chicago.....	2.50c.
Cotton ties, f.o.b. Atlantic ports, per bundle of 45 lb.....	\$1.22
Cotton ties, f.o.b. Gulf ports, per bundle of 45 lb.....	1.20

Cold-Finished Steel

Base Per Lb.

Bars, f.o.b. Pittsburgh mills.....	2.30c. to 2.40c.
Bars, f.o.b. Chicago.....	2.40c.
Bars, Cleveland.....	2.45c.
Shafting, ground, f.o.b. mill.....	*2.55c. to 3.00c.
Strips, f.o.b. Pittsburgh mills.....	3.25c. to 3.50c.
Strips, f.o.b. Cleveland mills.....	3.15c. to 3.40c.
Strips, delivered Chicago.....	3.45c. to 3.70c.
Strips, f.o.b. Worcester mills.....	3.75c.

*According to size.

Wire Products

(To jobbers in car lots, f.o.b. Pittsburgh and Cleveland)

Base Per Keg

Wire nails.....	\$2.65
Galv'd nails, 1-in. and longer.....	4.65
Galv'd nails, shorter than 1-in.....	4.90
Galvanized staples.....	3.35
Polished staples.....	3.10
Cement coated nails.....	2.65

Base Per 100 Lb.

Bright plain wire, No. 9 gage.....	\$2.50
Annealed fence wire.....	2.65
Spring wire.....	3.50
Galv'd wire, No. 9.....	3.10
Barbed wire, galv'd.....	3.25
Barbed wire, painted.....	3.10

Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.

Woven Wire Fence

Base to Retailers Per Net Ton

F.o.b. Pittsburgh.....	\$65.00
F.o.b. Cleveland.....	65.00
F.o.b. Anderson, Ind.....	64.00
F.o.b. Chicago district mills.....	67.00
F.o.b. Duluth.....	63.00
F.o.b. Birmingham.....	68.00

Sheets

Blue Annealed

Base Per Lb.

Nos. 9 and 10, f.o.b. Pittsburgh.....	2.80c. to 2.40c.
Nos. 9 and 10, f.o.b. Ch'go dist. mill.....	2.50c.
Nos. 9 and 10, del'd Philadelphia.....	2.62c. to 2.72c.
Nos. 9 and 10, f.o.b. Birmingham.....	2.60c. to 2.70c.

Box Annealed, One Pass Cold Rolled

No. 24, f.o.b. Pittsburgh.....	3.00c. to 3.10c.
No. 24, f.o.b. Ch'go dist. mill.....	3.20c.
No. 24, del'd Philadelphia.....	3.32c. to 3.42c.
No. 24, f.o.b. Birmingham.....	3.30c. to 3.40c.

Metal Furniture Sheets

No. 24, f.o.b. Pittsburgh, A grade.....	4.25c.
No. 24, f.o.b. Pittsburgh, B grade.....	4.10c.

Galvanized

No. 24, f.o.b. Pittsburgh.....	3.85c. to 3.95c.
No. 24, f.o.b. Chicago dist. mill.....	4.05c.
No. 24, del'd Philadelphia.....	4.17c. to 4.32c.
No. 24, f.o.b. Birmingham.....	4.20c. to 4.30c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh.....	3.15c. to 3.25c.
No. 28, f.o.b. Chicago dist. mill.....	3.25c. to 3.35c.

Automobile Body Sheets

No. 20, f.o.b. Pittsburgh.....	4.25c.
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Long Ternes

No. 24, 8-lb. coating, f.o.b. mill.....	4.30c.
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Tin Plate

Per Base Box

Standard cokes, f.o.b. P'gh district mills.....	\$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.....	5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base.....	\$11.40
8-lb. coating I.C. 11.70.....	25-lb. coating I.C. 17.90
15-lb. coating I.C. 14.85.....	30-lb. coating I.C. 19.45
	40-lb. coating I.C. 21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers Base Per 100 Lb.

2100* (1/4% Nickel, 0.10% to 0.20% Carbon).....	\$3.20 to \$3.25
2300 (2 1/4% Nickel).....	4.35 to 4.50
2500 (5% Nickel).....	5.50 to 5.65
3100 (Nickel Chromium).....	3.40 to 3.50
3200 (Nickel Chromium).....	5.00 to 5.25
3300 (Nickel Chromium).....	7.00 to 7.25
3400 (Nickel Chromium).....	4.25 to 4.50
5100 (Chromium Steel).....	3.40 to 3.50
5200* (Chromium Steel).....	7.90 to 7.50
6100 (Chrom. Vanadium bars).....	4.30
6100 (Chrom. Vanad. spring steel).....	3.50
9250 (Silicon Manganese spring steel).....	3.20 to 3.25
Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.).....	4.10 to 4.20
Nickel Chrome Vanadium (0.60% Nickel, 0.50% Chrom., 0.15% Vanad.).....	4.30
Chromium Molybdenum bars (0.80-1.10 Chrom., 0.25-0.40 Molyb.).....	4.25 to 4.35
Chromium Molybdenum bars (0.50-0.70 Chrom., 0.15-0.25 Molyb.).....	3.40 to 3.50
Chromium Molybdenum spring steel (1-1.25 Chrom., 0.50-0.50 Molybdenum).....	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2 1/2-in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

Per Gross Ton

Standard, f.o.b. mill.....	\$43.00
Light (from billets), f.o.b. mill.....	36.00
Light (from mill steel), f.o.b. mill.....	34.00
Light (from billets), f.o.b. Ch'go.....	\$36.00 to \$38.00

Track Equipment

(F.o.b. Mill)

Base Per 100 Lb.

Spikes, 3/4 in. and larger.....	\$1.80 to \$2.00
Spikes, 3/4 in. and smaller.....	2.90 to 3.25
Spikes, boat and barge.....	3.25
Track bolts, all sizes.....	1.90 to 4.80
Tie plates, steel.....	2.25 to 2.35
Angle bars.....	2.75

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Inches	Steel	Black	Galv.	Inches	Iron	Black	Galv.
1/8.....	45	19 1/2	1/4 to 3/4.....	11	+30		
1/4.....	51	25 1/2	3/4.....	23	3		
3/8.....	56	42 1/2	3/4.....	28	11		
1/2.....	60	48 1/2	1 to 1 1/2.....	30	19		
3/4.....	63	50 1/2					

Lap Weld

2.....	53	43 1/2	3.....	28	7
2 1/2 to 3.....	59	47 1/2	3 1/2.....	28	11
3 and 3 1/2.....	64	48 1/2	3 to 6.....	28	18
3 and 10.....	54	41 1/2	7 to 12.....	28	11
11 and 12.....	63	49 1/2			

Butt Weld, extra strong, plain ends

1/8.....	41	24 1/2	1/4 to 3/4.....	+10	+54
1/4.....	47	30 1/2	3/4.....	31	7
3/8.....	53	42 1/2	3/4.....	28	13
1/2.....	58	47 1/2	1 to 1 1/2.....	30	14
3/4.....	60	49 1/2			
1 to 3.....	61	50 1/2			

Lap Weld, extra strong, plain ends

2.....	53	43 1/2	3.....	28	9
2 1/2 to 3.....	57	46 1/2	3 1/2 to 4.....	28	15
4 1/2 to 6.....	56	45 1/2	4 1/2 to 6.....	28	14
7 to 8.....	52	39 1/2	7 to 8.....	31	7
9 and 10.....	45	32 1/2	9 to 12.....	16	8
11 and 12.....	44	31 1/2			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1 1/2 points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2 1/2%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2 1/2 points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel	Charcoal Iron
2 to 2 1/4 in.....	37
2 1/4 to 3 in.....	37
3 in.....	40
3 1/4 to 4 in.....	42 1/2
4 to 12 in.....	48

Beyond the above discounts, 5 to 7 five extra are given on lap welded steel tubes and 2 ten to 2 ten and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.....	60
1 1/4 to 1 1/2 in.....	62
1 1/2 in.....	66
2 to 2 1/4 in.....	61
2 1/4 to 2 3/4 in.....	59

Hot Rolled

2 and 2 1/4 in.....	34
2 1/2 and 3 in.....	42
3 in.....	45

Less cartloads, 4 points less. Add \$5 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Per Cent Off List

Carbon, 0.10% to 0.30%, base.....	55
Carbon, 0.30% to 0.60%, base.....	50

Plus differentials for lengths over 15 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

with the Petroleum Iron Works, Sharon, Pa. Plate business is not so heavy as to tax productive capacity but is steady enough to sustain fairly high operation of units that can be run profitably at a price of 1.90c., base Pittsburgh.

Wire Products.—Business is still receding. Farmer buying is slow, and the automobile industry is taking little in the way of spring wire and special products, while there is the natural aversion by jobbers to adding to their stocks at this time of year. There is no pressure to sell, however, and prices are holding fairly well.

Rails and Track Supplies.—The New York Central Lines' award of between 25,000 and 30,000 tons of track supplies, bids on which were opened Nov. 15, is waited with interest. In the inquiry are bolts, spikes, splice bars and tie plates, prices on 3,500,000 of 13 lb. average weight tie plates being asked. In a general way, orders for track accessories are moderate, and there is not much activity in standard-section rails. The reaction in the soft coal prices throws doubt on continued operation of a number of mines that started up in the past three or four weeks, and the call for light rails is smaller than it has been. Prices are given on page 1437.

Tubular Goods.—The market generally is less active. Interest in butt-welded pipe is rarely high at this time of year, because it is entirely a jobbing proposition and inventory considerations cause purchases to be made in close harmony with sales into consumption. Oil and gas well drilling operations are lighter with the approach of winter, and lap-welded pipe for that purpose is selling less freely. There has not yet been much letdown in the general operation of lap-welded pipe mills, but the tendency is in that direction. Some units of the National Tube Co. at its Lorain, Ohio, plant and its Pennsylvania works, Pittsburgh, have gone off, while delivery promises by independent companies are now two to four weeks, against four weeks or longer in September. Welded pipe mill operations, as a whole, are at about 80 per cent of capacity. There is only a moderate degree of activity in boiler tubes, and mechanical tubing is slow because of the low rate of automobile production. Discounts are given on page 1437.

Sheets.—There has not been much reaction to the opening of books for first quarter business by the American Sheet & Tin Plate Co. and a number of the independent producers. Consumers generally are well supplied against their requirements for the next 30 days, and with present mill quotations being extended into the first quarter, there is not the incentive to buy that would obtain if an advance were proposed. Actually, there is a feeling among consumers that they will buy to better advantage by waiting. There is a very moderate demand for automobile body sheets, and such orders as are being placed are not for immediate delivery. Some slowing down in specifications

for the common finishes is noted, and mill operations have dipped under 80 per cent of capacity. Prices are given on page 1437.

Tin Plate.—Independent makers have generally followed the lead of the American Sheet & Tin Plate Co. in reaffirming \$5.50 per base box, Pittsburgh, for standard coke tin plate for first quarter and first half business. A few contracts for next year have been placed, but as a rule the larger container manufacturers still are budgeting their requirements for the first half of 1927. Mill operations are holding up well, because of fair-sized general line demands and continued good export sales. The American Sheet & Tin Plate Co. yesterday put on four mills at its Monessen, Pa., plant, which had been idle while mill drive changes were in progress. Ten of the 25 mills at that plant are now electrically driven, and all are running. With the resumption at LaBelle works, Wheeling, W. Va., on Dec. 1, the company will have 97½ per cent of its tin mill capacity in operation.

Cold-Finished Steel Bars and Shafting.—There has been some gain in orders from consumers outside the automotive industry, but with no increase in the demand from that source, general business still leaves much to be desired. The market is steadier at 2.40c., base Pittsburgh, for ordinary tonnages, than it was at a higher base earlier in the fall.

Hot-Rolled Flats.—Orders for strips are running slightly larger than for the same period last month, but shipping instructions are being withheld on a number of them to the detriment of mill operating schedules. Hoops and bands are not moving freely. Makers generally need orders but evidently not so badly as to shade prices, as there are no suggestions of deviations from 2.30c., base Pittsburgh, on material 6 in. and wider, or from 2.50c., base, on the narrower sizes.

Cold-Rolled Strips.—Orders are still small from the automotive industry, and while there is some increase in the demand from other consumers, it is not sufficient to offset the paucity of business from motor car builders. A low rate of mill operations and a consequent desire for orders keep prices favorable to buyers, particularly of more than carload lots.

Bolts, Nuts and Rivets.—Business is better with some bolt and nut makers but shows no improvement according to the reports of others. Published prices are more commonly observed than was the case four or five weeks ago. The rivet market is still irregular and more favorable to buyers than sellers. Prices and discounts are given on page 1439.

Coke and Coal.—In a market in which there is very little business, it is possible to make only an appraisal of coke prices. Blast furnace requirements amount to little, and not much coke has been wanted for gas plants, for heating and for metallurgical purposes aside from iron making. It takes so little coke to supply the demand that a comparatively small supply is sufficient to topple prices. This has happened in the past week, which has brought a drop of 50c. a ton in furnace grade. Foundry coke has gone down a like amount, because buyers, noting the slump in coal, have refused to pay recent prices. Some brands of foundry coke are still quoted around \$7, but \$5.50 to \$6 is more representative of the ruling market. On spot furnace coke, \$4.75 is the top.

Old Material.—The market is weaker on the steel works grades because of continued light demand and increased pressure by dealers to sell. Heavy melting steel is quotable at \$17 to \$17.50. The lower figure is more likely to rule than the higher one on the next sale of consequence, despite the fact that the steel in the November scrap list of the Pennsylvania Railroad sold at \$17.81, delivered Vandergrift, Pa. Dealers are trying to find buyers willing to pay \$17.50, but without success. At one point, where \$18 was recently paid, the buyer is holding up shipments, and a number of steel companies are requesting lighter shipments against old orders. The effort to establish two grades

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes.....	2.90c.
Reinforcing steel bars	2.90c.
Black sheets (No. 24 gage), 25 or more bundles	3.95c.
Galvanized sheets (No. 24 gage), 25 or more bundles	4.70c.
Blue annealed sheets (No. 10 gage), 25 or more sheets	3.40c.
Cold-finished shafting and screw stock—	
Rounds and hexagons.....	3.60c.
Squares and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Bolts, track.....	4.90c.
Wire, black soft annealed, base per 100 lb.	\$3.00
Wire, galvanized soft, base per 100 lb....	3.00
Common wire nails, per keg.....	3.00
Cement coated nails, per keg.....	3.05

(Concluded on Page 1453)

Chicago

Railroad Car Demand More Active— Total Sales of Pig Iron Large

CHICAGO, Nov. 16.—Steel mill blast furnace operations are lower as a result of the blowing out of a stack by the Steel Corporation at South Chicago. This furnace has been on the verge of requiring a new lining for some time, and for several months it has been engaged in the production of special iron. Since the company has more than an ample stock of scrap for ordinary requirements, the blowing out of this stack does not mean a lowering of ingot production, which holds at close to the 85 per cent mark. The leading producer now has 16 furnaces in blast out of 27, and the total count of active steel works stacks in this district is 25 out of 36.

Shipments of all finished steel products are holding steady and the volume of specifications shows no recession. However, new business, rails not considered, is lower than in October. The railroad equipment market is decidedly more active, both in inquiries and orders. The Rock Island is asking for prices on 2500 freight cars, and the trade looks daily for an inquiry from the Santa Fe. The Northern Refrigerator Lines have placed 201 refrigerator cars with the Pullman Car & Mfg. Corporation. The Chicago & North Western has purchased eight baggage cars, and the Pacific Fruit Express has contracted for 600 underframes with a Pacific Coast builder. The placement by the North Western of superstructures and underframes for 500 cars is believed to be the forerunner of an order for a like number early next year. The Pere Marquette has placed a sizable order for locomotives, and the Missouri Pacific may come into the market for 45 engines.

Pig Iron.—Fourth and first quarter sales are progressing quietly but actively, and it is estimated that 300,000 tons of pig iron have been placed since the present buying movement started in October. Sales up to the middle of November more than equal the total for the previous month. Shipments are a trifle below those of the previous week but are abreast of the average for October. There is a tendency for furnace stocks to grow. Deliveries have not suffered as yet, although there are evidences of a shortage of open-top railroad equipment, particularly in the central and southern parts of Illinois. The Thomas furnace at Milwaukee was blown out Nov. 15 for an indefinite period. That producer has sufficient stock on hand to cover contracts and a small surplus in addition. Two courses are being considered with respect to the future operation of the furnace. One is placing the stack in hands of a new management, and the second is a receivership. Northern No. 2 foundry iron, at \$21, local furnace, is firmer than at any time this fall. The situation in silvery is tight. Sales for the remainder of the year are being taken subject to confirmation. Orders for delivery after the first of the year are being taken at \$1 above the recent advance. First quarter silvery of the 8 per cent grade is being quoted at \$29.50, Jackson County, or \$34.29, delivered.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards:

Northern No. 2 foundry, sil. 1.75 to 2.25	\$21.00
Northern No. 1 foundry, sil. 2.25 to 2.75	21.50
Malleable, not over 2.25 sil.	21.00
High phosphorus	21.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	27.04
Southern No. 2 (all rail)	26.01
Southern No. 2 (barge and rail) ..	24.18
Low phos., sil. 1 to 2 per cent, Copper free	\$31.50 to 32.50
Silvery, sil. 8 per cent.	33.29
Bessemer ferrosilicon, 14 to 15 per cent	46.79

Ferroalloys.—Sellers have opened books on 50 per cent ferrosilicon at \$85, delivered. Contracting for the coming year is heavy and is rapidly being completed. Specifications in 1926 have been large, and almost with-

out exception users have taken the total tonnage contracted for. Consumers of domestic ferromanganese are being tendered contract forms for the first half at \$100 seaboard, or \$107.56, delivered. Spiegeleisen of the 16 to 19 per cent grade is not obtainable in this territory. The 19 to 21 per cent grade made by domestic producers is being quoted at \$40, base Hazzard, Pa., or \$47.56, delivered. This price holds only for delivery in the fourth quarter, and orders are taken subject to confirmation.

We quote 80 per cent ferromanganese, \$107.56, delivered Chicago; 50 per cent ferrosilicon, \$85, delivered; spiegeleisen, 18 to 22 per cent, \$47.56, delivered Chicago.

Plates.—Mill books have been enlarged to the extent of 8000 tons of tank steel placed by oil refiners who are operating in Kansas, Oklahoma and Texas. There is 10,000 tons of new tank work in sight, which, added to old inquiry, makes a total of 25,000 tons pending. Local mills are feeling the lack of car buying, and deliveries on plates are unusually prompt. The Chicago & North Western has divided 500 steel underframes and superstructures for automobile cars between two builders, and is also reported to have contracted for eight baggage cars. The purchase of superstructures and underframes is believed to be the forerunner of an order for a like number to be placed after the first of the year. It is now definitely known that the Rock Island will enter the market for cars at an early date, and the number is said to be 3000. Plates are holding steady at 2.10c., Chicago, but competition in outlying districts is keen, with mills in the East pressing closer to Chicago.

The mill quotation on plates is 2.10c. per lb., base, Chicago.

Sheets.—Chicago mills have opened books for first quarter at current prices. New buying is still comparatively light, but specifications are in good volume and show little change from the average for several weeks past. Production is close to capacity in this district. Heavy purchases made early in the fall obligated mills almost to the end of the year. Specifications following the buying movement were heavy, and deliveries early in October were seven to eight weeks. In the meantime shipments have been heavy, so that deliveries now are about four to five weeks, with a tendency to improve still further. Demand from the roofing trade is still at the October rate, but more severe weather will materially reduce the requirements of that class of consumers. There is a tendency on the part of buyers of sheets for roofing to use heavier gages. Better specifications are coming from warehouses, which are pressing mills for deliveries.

Chicago delivered prices from mill are 2.25c. for No. 24 black; 2.55c. for No. 10 blue annealed; 4.10c. for No. 24 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Structural Steel.—Fabricators are enjoying a good run of business, and specifications from them are heavier than for a number of weeks past. Stocks at structural shops are unusually light, probably at the low point of the year, and prompt mill delivery is being insisted upon. Fresh inquiry for fabricated steel is showing a decided upturn, and this, combined with the contracts placed since the first of the month, has stiffened bids. Figures on a local municipal court and police building will be out this week. Preliminary estimates put this tonnage at 4000. The American Bridge Co. has taken 1000 tons for a theater at Madison, Wis. A theater at Milwaukee calls for 1500 tons.

The mill quotation on plain material is 2.10c. per lb. base, Chicago.

Bars.—There is further evidence of increased production by automobile parts manufacturers, and specifications for soft steel bars from that source are larger. New buying is slowly improving, and mills find that specifications are equal to, and new business is slightly below, current shipments. November is running a trifle below October in shipments. Soft steel bars are firmer at 2.10c., Chicago, than was the case earlier in the month. Specifications for alloy steel bars are larger, and production now lies between 70 and 75 per cent of capacity. A marked quickening in demand has come from forging companies that cater

to the automotive industry. Iron bars are quiet, and mills are operating from order to order. Both inquiry and new business in rail steel bars are tapering off. The active season for farm equipment manufacturers is virtually over, and although bed makers are said to be operating at close to capacity, their specifications are light. Rail steel mills are heavily engaged completing deliveries against contracts for reinforcing bars.

Mill prices per lb. are: Mild steel bars, 2.10c., base, Chicago; common bar iron, 2c. base, Chicago; rail steel bars, 2c., base, Chicago.

Rails and Track Supplies.—Rail bookings this week total 6400 tons, which represents a portion of the tonnage placed by an Eastern railroad. Inquiry for light rails is heavier, and a small tonnage has been placed. Light rails are showing greater strength at \$36 to \$38 per gross ton, f.o.b. Chicago mills. Rail mills in this district are speeding up, and, in view of specifications already received, are looking forward to still greater production. Specifications for track supplies are heavy, and in most cases railroads are asking for shipments before the first of next year.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled from billets, \$36 to \$38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. per lb. mill; track bolts with square nuts, 3.90c. mill; steel tie plates, 2.35c. mill; angle bars, 2.75c. mill.

Cast Iron Pipe.—Demand is quickening, as many of the outlying municipalities come into the market for tonnages to be placed before severe winter weather. Makers expect that heavy buying of pipe for winter manufacture will begin within the next two or three weeks. Deliveries on 6, 10 and 12-in. pipe now range from four to five weeks. Chicago has closed its 1926 pipe program by placing a small tonnage of 3 and 4-in. Henry Rees & Son are low bidders on 1100 tons of 6 to 12-in. Class B pipe for Mount Prospect, Ill. No report is available here as to the disposition of 900 tons that was to have been placed last week by Toledo, Ohio. The United States Cast Iron Pipe & Foundry Co. is said to have taken 2200 tons of 6-in. Class B pipe for Detroit. Mansfield, Ohio, will take figures on 350 tons of 12-in. Class B pipe, and Royal Oak, Mich., will close Nov. 15 on 100 tons of 6-in. Class B. North Riverside, Ill., will receive tenders on 600 tons of 6 to 10-in. pipe, and Glenview, Ill., is in the market for 200 tons. Morton Grove, Ill., will soon take figures on 300 tons of 6-in. Class B pipe.

We quote per net ton, delivered, Chicago, as follows: Water pipe, 4-in., \$51.20 to \$52.20; 6-in. and over, \$47.20 to \$48.20; Class A and gas pipe, \$4 extra.

Hot-Rolled Strip.—Specifications are holding steady, and production, after having dropped late in October, is back to the average for the year. Prices, which lacked strength last week, are firmer.

Bolts, Nuts and Rivets.—Prices, as a general rule, are strong, specifications are tending downward, and spot buying is light. Railroad requirements are less, and there is a noticeable drop in specifications from the makers of farm implements, who have slowed down production in some lines, such as plows and other tillage equipment.

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes.....	3.10c.
Mild steel bars.....	2.00c.
Reinforcing bars, billet steel.....	2.25c. to 2.60c.
Cold-finished steel bars and shafting—	
Rounds and hexagons.....	3.60c.
Flats and squares.....	4.10c.
Hoops.....	4.15c.
Bands.....	3.65c.
No. 24 black sheets.....	3.95c.
No. 10 blue annealed sheets.....	3.50c.
No. 24 galvanized sheets.....	4.80c.
Standard railroad spikes.....	3.55c.
Track bolts.....	4.55c.
Structural rivets.....	3.50c.
Boiler rivets.....	3.70c.
	Per Cent Off List
Machine bolts.....	50 and 5
Carriage bolts.....	47 1/2
Coach or lag screws.....	55 and 5
Hot-pressed nuts, square, tapped or blank,	
3.25c. off per lb.	
3.75c. off per lb.	
Hot-pressed nuts, hexagons, tapped or blank,	
3.25c. off per lb.	
3.75c. off per lb.	
No. 8 black annealed wire, per 100 lb.....	\$3.20
Common wire nails, base per keg.....	3.05
Cement coated nails, base, per keg.....	3.05

Reinforcing Bars.—The outstanding new inquiry is for 580 tons for the Lucy Flower public school, Chicago. The placing of this contract will close one of the most active years in public school construction that Chicago has experienced. Inquiries for projects of over 100 tons each are few, but the demand for small tonnages remains active. Awards are light, but a number of pending jobs are expected to close at an early date. November shipments of bars are below those of October. Concrete bar fabricators in this territory are not engaged at more than 60 per cent of capacity. Prices are leaning toward the weaker side. New projects and recent awards are shown on page 1450.

Wire Products.—Demand for wire products, both from the jobbing and the manufacturing trade, shows some improvement, but it has not reached the level of late October. Mill operations are at close to 65 per cent, and stocks are being rounded out. Chicago mill prices, which are steady, are shown on page 1437.

Coke.—Prices of by-product foundry coke are stronger. Chicago users are largely covered by contract, but spot sales made in surrounding territory are at \$10.25, Chicago district ovens, an advance of 50c. a ton. The contract price remains at \$9.75, ovens, and \$10.25, delivered in the Chicago switching district. Contract prices on Eastern coke shipped to Chicago have been advanced in accordance with the recent increases in wages at the mines.

Old Material.—This market is without feature except that dealers are covering against old contracts, many of which expire within the near future. Inquiry is dull except for a few grades used by steel foundries. Buying is light, and it is usually done under pressure from the seller. Heavy melting steel is being traded in among dealers at \$13.50 per gross ton, delivered, but users are refusing to pay more than that price. Distress tonnage is only of car-lot proportions. Users are showing no hesitancy in taking shipments against past obligations. Prices paid to railroads are higher when compared to the general market than they were during the early part of the month. The Santa Fe got \$13.55 for heavy melting steel, \$15.25 for angle bars, \$16.75 for railroad malleable, \$16.80 for coil springs and \$17 for rolled steel wheels, all on the basis of gross tons on track. Railroad lists are heavy for this time of the month, indicating that an effort is being made to hasten the movement of scrap before cold weather sets in.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items, except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

	Per Gross Ton
Heavy melting steel.....	\$12.00 to \$13.50
Frogs, switches and guards, cut	
apart, and miscellaneous rails.....	14.50 to 15.00
Shoveling steel.....	12.00 to 12.50
Hydraulic compressed sheets.....	11.50 to 12.00
Drop forge flashings.....	9.50 to 10.00
Forged cast and rolled steel car-	
wheels.....	16.50 to 17.00
Railroad tires, charging box size.....	17.50 to 18.00
Railroad leaf springs, cut apart.....	16.50 to 17.00
Steel couplers and knuckles.....	15.50 to 16.00
Coil springs.....	17.25 to 17.75
Low phosphorus punchings.....	15.50 to 16.00
Axle turnings, foundry grade.....	12.00 to 12.50
Axle turnings, blast fur, grade.....	9.50 to 10.00
Relaying rails, 68 to 60 lb.....	25.50 to 26.50
Relaying rails, 85 lb. and heavier.....	26.00 to 31.00
Re-rolling rails.....	16.50 to 17.00
Steel rails, less than 8 ft.....	16.25 to 16.75
Iron rails.....	12.50 to 14.00
Cast iron borings.....	9.00 to 9.50
Short shoveling turnings.....	9.00 to 9.50
Machine shop turnings.....	6.50 to 7.00
Railroad malleable.....	16.50 to 17.00
Agricultural malleable.....	15.00 to 15.50
Angle bars, steel.....	15.00 to 15.50
Cast iron carwheels.....	14.50 to 15.00

	Per Net Ton
No. 1 machinery cast.....	16.00 to 16.50
No. 1 railroad cast.....	15.50 to 16.00
No. 1 agricultural cast.....	15.50 to 16.00
Stove plate.....	14.00 to 14.50
Grate bars.....	12.50 to 13.00
Brake shoes.....	12.00 to 12.50
Iron angle and splice bars.....	14.00 to 14.50
Iron arch bars and transoms.....	18.75 to 19.25
Iron car axles.....	22.00 to 22.50
Steel car axles.....	17.00 to 17.50
No. 1 railroad wrought.....	12.50 to 13.00
No. 2 railroad wrought.....	11.50 to 12.00
No. 1 busheling.....	10.25 to 10.75
No. 2 busheling.....	6.25 to 6.75
Locomotive tires, smooth.....	16.00 to 16.50
Pipes and flues.....	9.00 to 9.50

New York

Inquiry for Pig Iron Subsidies—Structural Steel Demand Declines

NEW YORK, Nov. 16.—With the collapse of the British coal strike and the sharp reaction in coke prices in this country, inquiry for pig iron has subsided. Sales by local brokers last week, however, totaled 18,000 tons. Most of the business was taken by Buffalo and other New York State furnaces. This is not surprising in view of the fact that some eastern Pennsylvania producers have advanced prices to \$23, base furnace, for foundry iron, as compared with the price of \$19, base Buffalo, quoted by furnaces in this State. The English strike settlement is expected to result in the withdrawal of a number of British inquiries for low phosphorus that have been current in this market. One of these called for 2000 tons and another for 500 to 1000 tons. Barge shipments of iron from New York State furnaces will stop shortly. The season of navigation on the New York State barge canal has virtually closed, and shipments from Troy and Port Henry will probably cease early in December. The Port Henry furnace is expected to blow in in the first week of next month. Among pending inquiries is one from the General Electric Co., Schenectady, N. Y., for 100 tons of foundry for prompt shipment to Everett, Mass., and 800 tons for first quarter delivery at Pittsfield, Mass. A New England buyer is understood to have closed for 2000 tons of basic. A fresh inquiry from Connecticut calls for 1000 tons of foundry for first quarter delivery. A Jackson County, Ohio, producer has advanced prices on silvery and Bessemer ferrosilicon \$1 a ton for first quarter delivery. This comes close on the heels of an advance of \$1 a ton for shipments during the remainder of the current quarter.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices \$1.39 to \$2.52 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.54 from Virginia:

East Pa. No. 2 fdy., sil. 1.75	
2.25	\$23.89 to \$25.02
East Pa. No. 2X fdy., sil. 2.25 to	
2.75	24.39 to 25.52
East Pa. No. 1X fdy., sil. 2.75 to	
3.25	24.89 to 26.02
Buffalo fdy., sil. 1.75 to 2.25 (all	
rail)	23.91
No. 2 plain fdy., sil. 1.75 to 2.25	
(by barge, del'd alongside in	
lighterage limits N. Y. and	
Brooklyn)	21.75
No. 2 Virginia fdy. sil. 1.75 to	
2.25	28.54 to 29.54

Ferroalloys.—Consumers of ferromanganese are beginning to show an interest in deliveries for 1927. There is an inquiry for 5000 tons, as the year's requirements of one consumer, and there are other inquiries bringing the total to 10,000 to 12,000 tons, some for delivery in the first half. It is believed that the alloy cannot be bought at less than \$100, seaboard or furnace. One large domestic producer announced this as the minimum price for the first half of next year. No large sales are reported this week. There has been but very little demand for spiegeleisen in the last few days, but the price of the 19 to 21 per cent grade still stands at \$40. The lower grade, 16 to 19 per cent, is practically unobtainable. Imports of British and German spiegeleisen have been heavy this year, the total for the first nine months having been 6908 gross tons.

Reinforcing Bars.—Bookings of concrete reinforcing bars during the week include several fair-sized tonnages for industrial buildings, the largest, 500 tons, being for Congoleum-Nairn, Inc., at Kearney, N. J. No large inquiries have come before the market in the last few days, but work on which estimates are being prepared totals approximately 3000 tons. Prices are holding at 2c., Pittsburgh, for large lots and at 2.10c. for lots of less than 100 tons. New York warehouses are quoting 3.15c., delivered at job, and the Youngstown warehouse price is unchanged at 2.50c., or 2.87½c., delivered New York.

Finished Steel.—With only six weeks of 1926 re-

maining, it is natural that consumers of steel should be exercising watchfulness over inventories to avoid carrying over much stock from this year to the next. Consequently the cautiousness that has prevailed throughout the year is even a little more in evidence now. In volume of business, however, there has been no decided falling off this month, and steel mills expect to complete the year with no great decline from the October rate of production. While here and there are some contract customers who are not specifying as freely as in recent months, these are the exceptions. The most marked decline in business has been in structural steel. Most of the fabricating shops are now quite anxious for tonnage and prices are being cut in efforts to obtain it. The structural mills, which had been at peak activity for months, are feeling the effects of the drop in structural lettings, and gaps in rolling sched-

Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes	3.34c.
Soft steel bars and small shapes	3.24c.
Iron bars	3.24c.
Iron bars, Swedish charcoal	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons	4.00c.
Flats and squares	4.50c.
Cold-rolled strip, soft and quarter hard	6.25c.
Hoops	4.49c.
Bands	3.99c.
Blue annealed sheets (No. 10 gage)	3.89c.
Long terne sheets (No. 24 gage)	5.80c.
Standard tool steel	12.00c.
Wire, black annealed	4.50c.
Wire, galvanized annealed	5.15c.
Tire steel, 1½ x ¼ in. and larger	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and	
larger	3.65c.
Open-hearth spring steel, bases	4.50c. to 7.00c.

Per Cent Off List

Machine bolts, cut thread	40 and 10
Carriage bolts, cut thread	30 and 10
Coach screws	40 and 10

Boiler Tubes—

Per 100 Ft.

Lap welded steel, 2-in.	\$17.33
Seamless steel, 2-in.	20.24
Charcoal iron, 2-in.	25.00
Charcoal iron, 4-in.	67.00

Discounts on Welded Pipe

Standard Steel—	Black	Galv.
¼-in. butt	46	29
¾-in. butt	51	37
1-in. butt	53	39
2½-6-in. lap	48	35
7 and 8-in. lap	44	17
11 and 12-in. lap	37	12
Wrought Iron—		
¼-in. butt	4	+19
¾-in. butt	11	+9
1-1½-in. butt	14	+6
2-in. lap	5	+14
3-6-in. lap	11	+6
7-12-in. lap	3	+16

Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100 lb. base box	\$6.45	\$6.20
Charcoal, per box—	A	AAA
IC	\$9.70	\$12.10
IX	12.00	14.25
IXX	13.90	16.00

Terne Plate (14 x 20 in.)

IC—20-lb. coating	\$10.00 to \$11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25

Sheets, Box Annealed—Black, C. R. One Pass

	Per Lb.
Nos. 18 to 20	4.15c.
No. 22	4.30c.
No. 24	4.35c.
No. 26	4.45c.
No. 28*	4.60c.
No. 30	4.85c.

Sheets, Galvanized

	Per Lb.
No. 14	4.50c. to 4.75c.
No. 16	4.60c. to 4.85c.
No. 18	4.75c.
No. 20	4.90c.
No. 22	4.95c.
No. 24	5.10c.
No. 26	5.35c.
No. 28*	5.60c.
No. 30	6.00c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

ules are more frequent. There is little or nothing to indicate what the attitude of buyers will be as to first quarter requirements, but the next 30 days will probably produce developments that will tend to show what steel trade prospects are to be for that period. Except on sheets, prices remain quite firm. Some of the sheet mills which haven't enough business on their books to complete the year are offering black sheets at 3c., Pittsburgh, and galvanized sheets at 3.85c., \$2 a ton below the so-called "regular" prices announced for the first quarter. As practically all of the sheets shipped on fourth quarter contracts are being billed at 3c. and 3.85c. the quotations of 3.10c. on black and 3.95c. on galvanized have been market prices in name only. Between now and the end of the year the test will come as to whether the sheet industry will be able to maintain the higher level.

We quote mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. per lb.; plates, 2.24c.; structural shapes, 2.34c.; bar iron, 2.24c.

Warehouse Business.—Demand for material from stock continues active despite the approach of the usual quietness at the end of the year. Purchasing of structural material has declined slightly, but buying of black and galvanized sheets is still in good volume. Prices on Swedish iron bars are unchanged on sales from stock, but importers report a strong foreign market and the prospect of a slight increase in price before long.

Cast Iron Pipe.—Municipalities are no longer active in purchasing water and gas pipe for use this year, and inquiries from gas companies, covering their spring requirements, are not expected for several weeks. Prices continue fairly firm, with most makers offering the usual \$1 per ton concession to buyers willing to accept winter delivery. After a delay of more than two months, New York has awarded the 10,000 tons of pipe with fittings and valve boxes on which the Gelsenkirchener Bergwerks, a German maker, was low bidder for most of the sections. All the pipe went to American foundries, while the representatives of the German company, E. D. Giberson & Co., New York, received Sections 8 and 9, which specify a total of 870 tons of valve boxes. These are to be made by the Foran Foundry & Machine Co., Flemington, N. J., as the delivery time is too short for execution of the contract by the German bidder. The remaining 12 sections of the inquiry have been awarded to the lowest American bidders. Of the pipe, the Donaldson Iron Co. received 1800 tons, the Warren Foundry & Pipe Co., 2780 tons, R. D. Wood & Co., 2300 tons, and the United States Cast Iron Pipe & Foundry Co., 3300 tons.

We quote pressure pipe per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, \$49.60 to \$52.60; 4-in. and 5-in., \$54.60 to \$57.60; 3-in., \$64.60 to \$67.60; with \$5 additional for Class A and gas pipe.

Coke.—With more coke ovens returning to activity following the decline of export demand for coal, Connellsville coke prices are reaching lower levels, particularly in the foundry market. Furnace grade is still fairly firm, with distress tonnages available at \$4.25 to \$4.75 per ton, Connellsville. Foundry quotations show much less strength and are as low as \$5.25 per ton for prompt shipment carloads up to \$6 and \$6.25 per ton. By-product foundry coke continues unchanged at \$10.59 to \$11.77 per ton, delivered Newark or Jersey City, N. J.

Old Material.—Consumers of scrap continue inactive except for a small purchase of heavy melting steel a week ago by a Coatesville, Pa., mill, understood to have been at about \$16 per ton, delivered. Brokers are offering \$15.50 per ton for this delivery and also for shipment to users at Bethlehem and Conshohocken, Pa. A mill at Claymont, Del., which recently suspended shipments, has not yet returned to the market. Yard steel for a consumer at Pottsville, Pa., is being purchased at \$13.50 to \$13.75 per ton, delivered. Borings and turnings continue an active grade, with shipments going forward to Sparrows Point, Md., and Steelton, Pa., at \$13 per ton, and to a Bethlehem, Pa., consumer at \$12.50 per ton. Chemical borings are being shipped

to Bound Brook at \$15.50, to Gibbstown at \$16, and to Long Island City at \$14.50 per ton.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	\$9.50 to \$10.00
Heavy melting steel (railroad or equivalent)	11.75 to 12.85
Rails for rolling	12.50 to 13.00
Steel car axles	18.50 to 19.00
Iron car axles	24.00 to 24.50
No. 1 railroad wrought	14.00 to 15.00
Forge fire	9.50 to 10.00
No. 1 yard wrought, long	13.00 to 14.00
Cast borings (steel mill)	9.25 to 9.75
Cast borings (chemical)	13.00 to 13.50
Machine shop turnings	9.25 to 9.75
Mixed borings and turnings	9.25 to 9.75
Iron and steel pipe (1 in. diam. not under 2 ft. long)	9.75 to 10.25
Stove plate (steel mill)	9.25 to 9.75
Stove plate (foundry)	11.00 to 11.50
Locomotive grate bars	10.50 to 11.00
Malleable cast (railroad)	16.00 to 16.50
Cast iron carwheels	12.25 to 12.75
No. 1 heavy breakable cast	12.00 to 14.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	\$16.00 to \$16.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	14.50 to 15.00
No. 2 cast (radiators, cast boilers, etc.)	13.50 to 14.00

Philadelphia

Lull in Pig Iron Buying—Steel Trade Also Declines

PHILADELPHIA, Nov. 16.—News of a probable settlement of the British coal strike brought a cessation in the demand for coal and coke, with an almost immediate effect on prices, and simultaneously the pig iron market lapsed into dullness. Coke prices declined 50c. to \$1 a ton, according to grade, following receipt of cables from London telling of the expected strike settlement.

In the steel trade the expected falling off in business incident to year-end caution in buying has developed. Some estimates are that November sales in most lines will be about 10 per cent below those of October, not counting rail tonnage. Contract customers, however, are sending in specifications, but their orders are small, though frequent. Structural steel mills in the East are operating at a reduced rate.

Pig Iron.—Since news was received of a probable settlement of the British coal strike pig iron buyers have settled back to await developments. Probably a third to a half of the buyers in this district have covered for all or part of their first quarter requirements, and it seems likely that any further buying of importance will not come until the price situation, affecting coal and coke as well as pig iron, has clarified. Coke prices have declined 50c. to \$1 a ton, according to grade, but pig iron prices, instead of turning weaker, have tended slightly the other way in that some furnaces which a week or so ago were making sales on the basis of \$22.50, furnace, for No. 2 plain, are now

Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Tank steel plates, 1/4-in. and heavier	2.80c. to 3.00c.
Tank steel plates, 1/2-in.	3.00c. to 3.20c.
Structural shapes	2.75c. to 3.00c.
Soft steel bars, small shapes and iron bars (except bands)	3.00c. to 3.20c.
Round-edge iron	2.50c.
Round-edge steel, iron finished, 1 1/2 x 1 1/2 in.	2.50c.
Round-edge steel, planished	4.20c.
Reinforcing steel bars, square, twisted and deformed	3.90c.
Cold-finished steel, rounds and hexagons	4.90c.
Cold-finished steel, squares and flats	4.50c.
Steel hoops	4.00c. to 4.25c.
Steel bands, No. 12 gage to 1/4-in., inclusive	3.75c. to 3.90c.
Spring steel	5.00c.
No. 24 black sheets	4.35c.
No. 10 blue annealed sheets	3.50c.
No. 24 galvanized sheets	5.30c.
Diamond pattern floor plates—	
1/4-in.	5.20c.
1/2-in.	5.50c.
Rails	2.20c.
Tool steel	8.50c.
Swedish iron bars	6.40c.

asking \$23, base. Sales within the week have been unimportant, consisting mainly of carload or 100-ton lots. Furnaces are no more anxious to sell at present than buyers are to buy. Some capital on the selling side is made of the fact that a bituminous coal strike may come April 1, 1927, and while this appears to be too far away to have any effect on pig iron prices in the interim, pig iron producers are using it as an argument against selling even for first quarter at prices any lower than those now prevailing. There is the contingency to be faced that an oversold condition for first quarter might force some shipments into second quarter; with a coal strike on April 1 the possibility of high coke prices would have to be reckoned with.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$23.26 to \$23.76
East. Pa. No. 2X, 2.25 to 2.75 sil.	23.76 to 24.26
East. Pa. No. 1X	24.26 to 24.76
Basic delivered eastern Pa.	23.00 to 23.50
Gray forge	23.00 to 23.50
Malleable	23.50 to 24.00
Standard low phos. (f.o.b. New York State furnace)	23.00 to 25.00
Copper bearing low phos. (f.o.b. furnace)	25.00 to 26.00
*Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
*Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17

*The freight rate from Virginia furnaces to Philadelphia is \$5.17 per gross ton.

Ferroalloys.—The Lavino Furnace Co. and the Bethlehem Steel Co., makers of ferromanganese for merchant sale, have announced that their quotations for first half are \$100, seaboard, which is also the price applying on delivery over the remainder of the year. Nearly all consumers are covered until Jan. 1 on contracts, against which shipping instructions are now being more freely given. Agents for British ferromanganese are also quoting \$100, seaboard, and while no British ferromanganese is now being made, owing to fuel shortage, there are sufficient stocks in England to take care of the demand. Recent quotations on domestic spiegeleisen are \$40, Eastern furnace.

Plates.—Plate business has been fluctuating slightly since the first of the month, but on the whole is only a little, if any, below that of October. Eastern mills continue to operate at about 50 to 60 per cent of capacity. Quotations are uniformly 1.90c., Pittsburgh. About 1600 tons of plates for 41 locomotives ordered by the Atchison, Topeka & Santa Fe Railway from the Baldwin Locomotive Works will be rolled by an Eastern mill. The Baldwin plant has also received orders for 25 engines for the Seaboard Air Line and 13 for Brazil. About 2000 tons of plates have been ordered for six car floats to be built for the Reading railroad by the American Brown Boveri Electric Corporation, Camden, N. J.

Structural Material.—Steel fabricating shops in this district are anxious for orders, and prices for fabricated and erected steel are lower than in some months. Structural steel mills are also anxious for orders and are operating at a rate below that of recent months. While prices on fabricated material are lower, plain material prices continue at a range of 1.90c. to 2c., Pittsburgh. A Philadelphia office building will take 3000 to 4000 tons of steel, and an addition to the Baldwin Locomotive Works at Eddystone, Pa., calls for 3500 tons.

Bars.—Specifications against fourth quarter contracts are being received from manufacturing consumers in only slightly less volume than in recent months, but new business is very light. Mills continue to quote 2c., Pittsburgh. On bar iron the usual quotation is 1.90c., Pittsburgh.

Sheets.—Although first quarter prices have been announced as 3.10c. on black, 2.40c. on blue annealed and 3.95c. on galvanized, Pittsburgh base, some mills are soliciting business for delivery over the remainder of this year at \$2 a ton under these prices. Demand for sheets has fallen off.

Imports.—Only one shipment of foreign pig iron was received at Philadelphia last week, consisting of 1450 tons from Germany. Other imports were: 11,363 tons

of iron ore from Algeria; 181 tons of cast iron pipe from Belgium; 177 tons of structural steel from Belgium and 10 tons of galvanized steel strips from England.

Old Material.—The scrap market is dull. One melter of heavy melting steel is offering \$15.50 for occasional carload lots, but is not in the market for any tonnage; another melter is holding back shipments, having no use for all that it recently bought. An Eastern steel company last week took a small tonnage of stove plate and grate bars at \$13.50, delivered.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	\$15.50 to \$16.00
Scrap rails	15.50 to 16.00
Steel rails for rolling	17.00 to 17.50
No. 1 low phos., heavy, 0.04 per cent and under	20.00 to 21.00
Couplers and knuckles	18.50 to 19.00
Rolled steel wheels	18.50 to 19.00
Cast iron carwheels	16.50 to 17.00
No. 1 railroad wrought	17.00 to 17.50
No. 1 forge fire	13.50 to 14.00
Bundled sheets (for steel works)	13.00
Mixed borings and turnings (for blast furnace)	12.50 to 13.00
Machine shop turnings (for steel works)	13.00
Machine shop turnings (for rolling mill)	13.00 to 13.50
Heavy axle turnings (or equivalent)	14.00 to 14.50
Cast borings (for steel works and rolling mill)	13.00 to 13.50
Cast borings (for chemical plant)	15.50 to 16.50
No. 1 cast	17.50 to 18.00
Heavy breakable cast (for steel works)	16.00 to 16.50
Railroad grate bars	13.00 to 13.50
Stove plate (for steel works)	13.00 to 13.50
Wrought iron and soft steel pipes and tubes (new specifications)	14.00 to 14.50
Shafting	21.00 to 22.00
Steel axles	23.00 to 24.00

Cleveland

Large Lake Freighters Placed—Sheets Weaken—Pig Iron Grows Dull

CLEVELAND, Nov. 16.—Finished steel continues in fairly good demand from most industries that are not directly affected by the reduced operations of automobile plants, and manufacturers in some lines are keeping up the same operating schedules they maintained a few weeks ago. Automobile companies are ordering steel as required by their reduced rate of production, which does not appear to have changed since the cut in operations became effective a few weeks ago. It seems to be the policy of the motor car builders to avoid overproduction and overloading of dealers. This differs from the plan that was followed not long ago of building large stocks of cars in anticipation of a seasonal buying movement, necessitating an extended curtailment later until stocks could be cleaned up. Orders placed by parts makers are for shorter deliveries than usual. Decreased demand for bolts and nuts from the motor car builders is reflected back in lighter orders from bolt and nut makers for both steel bars and wire.

The Pittsburgh Steamship Co., a subsidiary of the United States Steel Corporation, has placed two Lake freighters, requiring 10,000 tons of steel, for use in the Lake Superior ore trade, and this is taken as indicating a favorable outlook for the steel industry. Other boat orders are expected to be placed with Lake shipyards for next season's delivery.

The only change in the price situation is a little softening in sheets for early shipment. Steel bars in small sizes are still quoted at 2c., Cleveland, by a local mill, and some business has been taken at 1.90c. How-

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	3.00c.
Mild steel bars	3.00c.
Cold-finished rounds and hexagons	3.90c.
Cold-finished flats and squares	4.40c.
Hoops and bands	3.65c.
No. 24 black sheets	3.80c.
No. 10 blue annealed sheets	3.25c.
No. 24 galvanized sheets	4.65c.
No. 9 annealed wire, per 100 lb.	\$3.00
No. 9 galvanized wire, per 100 lb.	3.45
Common wire nails, base, per keg	3.00

ever, Pittsburgh and Youngstown mills are still adhering to 2c., Pittsburgh. Large plates are in somewhat better demand than a few weeks ago. A local mill has opened its books for plates for the first quarter at 1.90c., Pittsburgh. In the structural field the outstanding award is 3000 tons for a factory building for Dodge Brothers, Inc., Detroit. A bridge in Lorain, Ohio, will require about 2000 tons.

Pig Iron.—Sales tapered off considerably the past week, following the general price advances by Lake and Valley furnaces. With a settlement evidently near at hand in the British coal strike, which led to a higher fuel cost and to the marking up of pig iron prices, many buyers are unwilling to pay the advances and are waiting to see if prices will not sag back somewhat. While furnaces are still holding to the recent advances, the market does not show the strength that it did a week ago. The Cleveland price for foundry and malleable iron for outside shipment has not been established at above \$19, furnace, and a number of sales were made at that price during the week. In the Valley district there is still a spread from \$19 to \$20 in quotations, and some small sales are reported at the higher price. In Cleveland one producer is quoting \$20.50 at furnace for local delivery, but another that recently advanced to \$21 has made no sales at that price. Other Lake producers continue to quote \$20, furnace. Prices in Michigan are unchanged at \$20.50 to \$21, furnace. Not much inquiry is pending, and sellers expect that the present lull will continue until the price situation is more clearly defined. The curtailment in shipping orders by the automotive industry is still being felt, and there has been some slowing down in the demand from other consumers.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.00 freight rate from Jackson and \$6.01 from Birmingham:

Basic, Valley furnace.....	\$18.50 to \$19.50
Northern No. 2 fdy., sil. 1.75 to 2.25	21.00 to 21.50
Southern fdy., sil. 1.75 to 2.25	24.01
Malleable	21.00 to 21.50
Ohio silvery, 8 per cent.....	31.50
Standard low phos., Valley furnace	28.00

Sheets.—There is not much new business, and shipments are well in excess of tonnage currently entered. Buying is mostly of a hand-to-mouth character for early shipment. With some of the mills needing business, prices have weakened for early shipment orders. Some business in black sheets has been taken at 2.90c., Pittsburgh, and one sale is reported at 2.85c. However, some mills will not shade 3c., and others are holding to 3.10c. Blue annealed sheets have also slipped from the recent minimum of 2.30c., Pittsburgh. On these, quotations of 2.25c., Pittsburgh, and 2.30c., Valley, have appeared. Galvanized sheets are holding steady at a minimum of 3.85c., Pittsburgh. Several Ohio mills have followed the leading interest in opening their books for the first quarter at the present regular schedule of 3.10c., Pittsburgh, for black, 2.40c. for blue annealed and 3.95c. for galvanized sheets, but consumers are showing no interest in placing contracts.

Strip Steel.—The volume of business in cold-rolled strip steel has been reduced about to the extent of the curtailment in the automotive industry. On car lots 3.25c., Cleveland, is the common quotation, but that can be shaded considerably on a round lot. Tube stock is quoted at 3c., Cleveland. The demand for hot-rolled strip is very slow. A Cleveland mill is now equipped to make hot-rolled strip in widths up to 2½ in. and is quoting this at the regular price of 2.50c., but is using Cleveland as a basing point. Other producers are adhering to the Pittsburgh base.

Warehouse Business.—Orders for steel bars, plates and structural material show a gain in number over October, but they are for smaller lots, so that the aggregate tonnage is about the same. Sheets are in good demand. Prices are firm.

Reinforcing Bars.—New demand is very light, and orders are not of sufficient size to test regular quotations, which are 2c., Pittsburgh, for billet steel bars and 1.80c., mill, for rail steel bars.

tions, which are 2c., Pittsburgh, for billet steel bars and 1.80c., mill, for rail steel bars.

Ferroalloys.—Books have been opened for 50 per cent ferrosilicon for 1927 delivery at \$85, delivered, and English ferromanganese is offered at \$100, sea-board, for the first half, but consumers are as yet showing no interest in covering for their next year's requirements.

Semi-Finished Steel.—Specifications against contracts have shown a further decrease, this being more in evidence in the reduced demand for sheet bars than for slabs and billets. There is very little demand from consumers not having contracts. Prices are holding to regular quotations.

Bolts, Nuts and Rivets.—Orders for bolts and nuts have declined further, and some of the makers are not keeping up to recent operating schedules. Consumers are ordering only for immediate needs and evidently intend to have their stocks very low at inventory time. Should a Cleveland basing point on steel bars be generally adopted, local bolt and nut makers will be benefited to the extent that they use steel bars, but most bolts up to ½-in. sizes are now made from wire, which is sold on a Cleveland base. The demand for rivets is fair, and the regular price of \$2.60 per 100 lb., Pittsburgh, is being maintained in this market.

Coke.—Prices have declined with the softening of the coal market. Heating coke is off about \$1 a ton, now being quoted at \$4 to \$4.50, ovens. Connellsville foundry coke ranges from \$5.50 to \$6, ovens. Virtually all demands for foundry coke are being taken care of by shipments on contracts. Furnace coke is offered at \$4.75 to \$5, ovens.

Old Material.—The market is nearly at a standstill. There is no new demand either for steel-making or blast furnace grades, and some consumers are still holding back on shipments. Mills have good stocks, and dealers have but little material to ship on old orders. Production has fallen off, particularly in the automotive industry, so that there does not seem to be a surplus of scrap, and, in spite of the inactivity, prices are holding to recent levels.

We quote per gross ton delivered consumers' yards in Cleveland:

Heavy melting steel.....	\$14.50 to \$14.75
Rails for rolling	16.25 to 16.50
Rails under 3 ft.	16.50 to 17.00
Low phosphorus billet, bloom and slab crops	18.00 to 18.50
Low phosphorus sheet bar crops	17.00 to 17.50
Low phosphorus plate scrap.....	17.00 to 17.50
Low phosphorus forging crops.....	16.50 to 17.00
Cast iron borings	11.25 to 11.50
Machine shop turnings.....	9.25 to 9.50
Mixed borings and short turnings	11.25 to 11.50
Compressed sheet steel	13.50 to 14.00
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	14.75 to 15.00
Railroad malleable	16.50 to 17.00
Light bundled sheet stampings.....	12.00 to 12.50
Steel axle turnings	12.50 to 13.00
No. 1 cast	16.50 to 17.00
No. 1 busheling.....	12.00 to 12.50
No. 2 busheling	11.25 to 11.50
Drop forge flashings, 15 in. and under	11.50 to 12.00
Railroad grate bars	12.50 to 13.00
Stove plate	12.50 to 13.00
Pipes and flues	10.00 to 10.50

October Shipments and Production of Sheets Sustained

PITTSBURGH, Nov. 16.—Sheet sales of independent manufacturers in October were 212,029 tons, equal to 68.3 per cent of capacity, as compared with 448,147 tons, or 140.3 per cent of capacity in September, according to the monthly report of the National Association of Sheet and Tin Plate Manufacturers.

October production was 314,598 tons, an increase of 7139 tons over September, while shipments last month of 301,474 tons were practically even with those of September, which were 302,198 tons. Unfilled orders at the end of October were 581,993 tons, against 731,977 tons at the end of September.

Boston

Weakness Crops Out in Pig Iron Prices as Demand Falls Off

BOSTON, Nov. 16.—A slump has occurred in pig iron buying, due to developments in the English coal strike situation and in the domestic coal and coke markets. Foundries with inquiries outstanding are awaiting developments, and weakness has cropped out in pig iron prices. On a Vermont foundry's inquiry for 1000 tons of No. 2X for first quarter, two Buffalo furnaces that heretofore have strictly maintained the silicon differentials quoted the base price, while another furnace in that district went to \$18.50. Furnaces east of Buffalo offered the iron at prices equivalent to just under \$19, Buffalo, representing concessions of \$1 a ton. The foundry is still delaying action and probably will cut its purchase 50 per cent. A New Hampshire foundry inquiring for 300 tons of low silicon iron has not yet closed, and a Springfield, Mass., foundry is still taking figures on 500 tons of No. 1X. Among the sales reported the past week was 600 tons of No. 1X to a New Haven, Conn., foundry by an Eastern furnace at the equivalent of about \$19.50, Buffalo. Prices on iron from eastern and western Pennsylvania, Virginia and Alabama are much firmer than those on iron from Buffalo and east of Buffalo, but little business has been taken by furnaces in the former districts the past week. The relining of the Champlain furnace, Port Henry, N. Y., is completed, and it will be blown in this week. A freely circulated report that a Westfield, Mass., heater manufacturer has bought a round tonnage of iron is without foundation. The company is well covered into the first quarter of 1927.

We quote delivered prices per gross ton on the basis of the latest sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$6.91 to \$8.77 from Alabama:

East. Penn., sil. 1.75 to 2.25	\$25.65 to \$26.15
East. Penn., sil. 2.25 to 2.75	26.15 to 26.65
Buffalo, sil. 1.75 to 2.25	23.41 to 23.91
Buffalo, sil. 2.25 to 2.75	23.41 to 24.41
Virginia, sil. 1.75 to 2.25	28.42 to 29.92
Virginia, sil. 2.25 to 2.75	28.92 to 30.42
Alabama, sil. 1.75 to 2.25	26.91 to 28.77
Alabama, sil. 2.25 to 2.75	27.41 to 29.27

Finished Material.—Local mill representatives report better inquiry for most kinds of finished steel products. Consumers are specifying well against fourth quarter contracts. Rails, particularly street car rails, are in light demand, however, and the outlook for future business is not particularly bright, as a majority of street railroads are tearing up rails and using buses. The market for shapes is firm at 2c. per lb., base Pittsburgh, and plates are steady at 1.90c. Prospective business in reinforcing bars is slow in closing. Several thousand tons quoted on during the past month or six weeks are still pending.

Coke.—Although prices on Connellsville foundry coke have dropped \$1 a ton or more, New England by-product fuel interests are holding firmly to \$13 a

ton, delivered, within a \$3.10 freight rate zone. The demand for Connellsville coke is light, while that for New England fuel has been active. The New England melt of iron is decreasing rather than increasing; consequently it is assumed foundries have been ordering coke as a precautionary measure. It is now believed that the average New England foundry is supplied with enough fuel to last from one to three months and with iron to last three to five months.

Cast Iron Pipe.—Providence, R. I., has awarded 200 tons of 6-in. Class B pipe to R. D. Wood & Co., and Lynn, Mass., 200 tons of 42 and 62-in. pipe and fittings, mostly fittings, to the Warren Foundry & Pipe Co. No other municipal lettings are reported. The large New England gas companies are still feeling the market, and indications are that they will close late this month or in December. Prices quoted openly on domestic pipe are: 4-in., \$60.10 per net ton, delivered common Boston freight rate points; 6 to 12-in., \$55.10 to \$56.10; larger pipe, \$53.10 to \$55.10. The usual \$5 differential is asked on Class A and gas pipe.

Old Material.—With demand still limited, fresh weakness has developed on certain grades of scrap. For instance, the very best a majority of dealers will pay today on heavy melting steel is \$11 a ton, on cars shipping point. There are bids as low as \$10.50. These prices represent a drop of 50c. a ton, and prices on railroad and yard wrought have slumped as much under their own weight. Pipe is difficult to sell, and the average range of quotations is \$9 to \$9.50, a drop of 50c. Chemical borings have declined 25c., the best offer today being \$11. Shafting is also easier. In contrast, street car axles are scarce and somewhat higher. Long bundles of skeleton will not bring more than \$8 to \$8.50, while short bundles command a premium of about 50c., with \$9 the average top bid in this market. Textile machinery was moved the past week in limited quantities at \$18.50 to \$19 per ton, delivered. In common machinery cast the market is easier.

The following prices are for gross ton lots delivered consuming points:

Textile cast	\$18.50 to \$19.00
No. 1 machinery cast	18.00 to 18.50
No. 2 machinery cast	16.50 to 17.00
Stove plate	14.00 to 14.50
Railroad malleable	19.50 to 20.00

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	\$10.50 to \$11.00
No. 1 railroad wrought	11.50 to 12.00
No. 1 yard wrought	10.50 to 11.00
Wrought pipe (1 in. in diameter, over 2 ft. long)	9.00 to 9.50
Machine shop turnings	8.00 to 8.50
Cast iron borings, chemical	10.50 to 11.00
Cast iron borings, rolling mill	8.00 to 8.50
Blast furnace borings and turnings	8.00 to 8.50
Forged scrap	8.50 to 9.00
Bundled skeleton, long	8.00 to 8.50
Forged flashings	8.50 to 9.00
Bundled cotton ties, long	8.00 to 8.50
Bundled cotton ties, short	8.50 to 9.00
Shafting	16.00 to 16.50
Street car axles	17.50 to 18.50
Rails for rerolling	11.50 to 12.00
Scrap rails	10.50 to 11.00

San Francisco

Large Shipment of German Coke Arrives —City to Buy 1426 Tons of Rails

SAN FRANCISCO, Nov. 13 (By Air Mail).—Outstanding developments of a week shortened by celebration of Armistice Day have been the arrival of a shipment of 8000 tons of German coke, an inquiry put out by the city of San Francisco for 1426 gross tons of girder rails, 36,850 pairs of tie plates and other track materials, and an announcement that one of the leading independent producers of tin plate will quote that product to consumers for first half business at \$5.50 per base box and that, for the first quarter, the same figure will be named to jobbers. In all departments of the market there has been heavier buying during the week, but most of the orders placed have been light, and fresh inquiries, for the most part, call for relatively small

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Soft steel bars and small shapes	3.265c.
Flats, hot-rolled	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Norway, rounds	6.60c.
Norway, squares and flats	7.10c.
Structural shapes—	
Angles and beams	3.365c.
Tees	3.365c.
Zees	3.465c.
Plates	3.365c.
Spring steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold rolled steel—	
Rounds and hexagons	4.05c.
Squares and flats	4.55c.
Toe calk steel	6.00c.

tonnages. The amount of business pending, however, is fairly substantial. Prices generally are firm.

Pig Iron.—While it is still too early for local melters to place their first quarter specifications, there is a good deal of speculation on the part both of buyers and sellers as to whether first quarter requirements will be as large as the tonnage booked for the first three months of this year. Buying during the first half of 1926 was substantial, but it fell off considerably in the third quarter, and the tonnage placed during the present quarter has been comparatively light. Quotations are unchanged.

	Per Gross Ton
•Utah basic	\$25.00 to \$26.00
•Utah foundry, sil. 2.75 to 3.25...	25.00 to 26.00
•Indian foundry, sil. 2.75 to 3.25...	25.00
•German foundry, sil. 2.75 to 3.25...	24.25

•Delivered San Francisco.

•Duty paid, f.o.b. cars San Francisco.

Shapes.—Only one structural job calling for over 100 tons of fabricated steel has been reported this week, namely, 380 tons for a department store addition in Berkeley, Cal., which was taken by the Pacific Coast Engineering Co., Oakland, Cal. Fresh inquiry has been unimportant. The Atkinson-Spicer Co., Los Angeles, is low bidder on the general contract for the construction of the proposed Coolidge dam, near San Carlos, Ariz., which will require 700 tons of structural material and 2250 tons of concrete bars, as previously reported. The low bid for building the dam is \$2,268,565. Eastern mills continue to quote plain material at 2.35c., c.i.f. Coast ports.

Plates.—Dec. 2 has been set as the definite date for reading bids on 6000 to 10,000 tons of plates required for a pipe line by the city of Yakima, Wash. Both the Shell Oil Co. and the Associated Oil Co. placed 620 tons during the week. Each letting was for two 80,000-bbl. tanks, which were awarded respectively to the Lacy Mfg. Co., Los Angeles, and to the Western Pipe & Steel Co. of California. The California Petroleum Corporation, Los Angeles, is taking bids on 930 tons for three 80,000-bbl. tanks. Eastern mills continue to quote plates at 2.30c., c.i.f. Coast ports.

Bars.—Both lettings and inquiries during the week have called for less than 100-ton lots, with one exception—500 tons for the Liggett Building, Seattle, Wash., taken by the Pacific Coast Steel Co. A number of jobs are pending locally that are expected to be closed within the next fortnight. The minimum quotations of local jobbers in reinforcing bars range from about 2.30c. to 2.45c., base, per lb. on lots of 200 tons.

Cast Iron Pipe.—Lettings for the week total 1292 tons, and fresh inquiries call for 3882 tons. Included among the larger lettings are the following: The city of San Diego, Cal., awarded 612 tons, of which 544 tons went to B. Nicoll & Co. and 68 tons to the United States Cast Iron Pipe & Foundry Co. The city of Wenatchee, Wash., placed 335 tons with B. Nicoll & Co., through D. A. Power, Spokane, Wash. The United States Cast Iron Pipe & Foundry Co. took 100 tons for the city of Sacramento, Cal. The Grinnell Co. of the Pacific was awarded 125 tons by the city of Alhambra, Cal. The city of Tacoma, Wash., let 120 tons to an unnamed company. Fresh inquiries include the following: 1975 tons for the city of Sacramento, Cal.; 100 tons for the city of Antioch, Cal.; 770 tons for the Water and Power Commission, Los Angeles; 882 tons for the city of Rialto, Cal., and 155 tons for the Coast Counties Gas & Electric Co., Salinas, Cal. Quotations are firm at \$50 base, water shipment, San Francisco.

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes.....	3.30c.
Mild steel bars and small angles.....	3.30c.
Small channels and tees, $\frac{1}{4}$ -in. to 2 $\frac{1}{2}$ -in..	3.90c.
Spring steel, $\frac{1}{4}$ -in. and thicker.....	5.00c.
No. 24 black sheets.....	4.90c.
No. 28 black sheets.....	5.15c.
No. 10 blue annealed sheets.....	4.00c.
No. 24 galvanized sheets.....	5.45c.
No. 28 galvanized sheets.....	6.15c.
Common wire nails, base per keg.....	\$2.75
Cement coated nails, 100-lb. keg.....	2.75
Cement coated nails, count kegs.....	3.00

Steel Pipe.—The Shell Oil Co., Los Angeles, is reported to have placed 1800 tons of 3-in. seamless tubing with the American Seamless Tube Corporation, Los Angeles, which, it is understood, will furnish a German product. The Republic Supply Co., Los Angeles, is low bidder on 286 tons of standard steel pipe required by the city of Los Angeles.

Warehouse Business.—General demand is sporadic, quotations are fairly steady, and jobbers' stocks apparently are adequate for all present requirements.

Rails and Track Supplies.—The United States Steel Products Co. has taken 1000 tons of girder rails for the city of Los Angeles. The city of San Francisco is inquiring for the following: 1426 gross tons of girder rails; 36,850 pairs of tie plates; 2126 pairs of joint plates; 532 kegs of track bolts; 300 kegs of spikes; 1050 anti-creepers; 6000 lock washers, and 4100 tie rods. Bids will be closed Nov. 24 by the Board of Public Works, City Hall.

Ferroalloys.—A local importer received a shipment of 400 to 500 tons of Swedish ferromanganese this week. Quotations are being made on specific inquiries only.

Coke.—During the week a local importer received a shipment of 8000 tons of German coke, part of which will be distributed at Los Angeles and in the Pacific Northwest. Despite the recent difficulty of getting shipments of German coke, a local importer during the week booked 1000 tons and has received cable confirmation from Germany that his requirement would be shipped immediately. Importers are quoting German by-product fuel, nominally, at about \$15 per net ton at incoming dock.

Old Material.—A moderate amount of business is being transacted in heavy melting steel, which is quoted at about \$10 to \$10.50 per gross ton at consumers' yards.

St. Louis

Pig Iron Advances 50c. a Ton—Better Steel Demand from Oil Fields

ST. LOUIS, Nov. 16.—Pig iron sales by the St. Louis Coke & Iron Corporation were well maintained during the last week. Of 12,000 tons sold 6000 tons went to St. Louis district melters in lots of from 300 to 1000 tons of foundry grades. The principal sale was 1800 tons to an Illinois melter. An Indianapolis user bought 500 tons, and there were a few scattering orders from the West. The Granite City maker has advanced its prices to \$21.50 to \$22, furnace. The recent increase in Eastern coal prices is a strengthening factor. Melters are taking deliveries according to schedule, and in some instances are anticipating contracts.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, \$2.16 freight from Chicago, \$4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25....	\$22.16
Northern malleable, sil. 1.75 to 2.25	22.16
Basic	22.16
Southern fdy., sil. 1.75 to 2.25....	24.42
Granite City iron, sil. 1.75 to 2.25, \$22.81 to 22.81	

Coke.—The supply of coke is still short, and local foundries are casting about for fuel, with few ovens able to quote. There is an increasing demand for domestic grades, and a number of fuel dealers are being forced to arrange for stocks elsewhere, since their natural sources have withdrawn from the market. The Granite City coke producer is out of the market on all grades except the chestnut size. The St. Louis by-product plant is allocating its output among its regular trade.

Finished Iron and Steel.—The order for 4,000,000 tie plates recently placed by the Missouri Pacific Lines, as reported in THE IRON AGE last week, has been increased by the purchase of 1,500,000 tie plates for the International-Great Northern Railroad, a Texas subsidiary. These were bought from the Colorado Fuel

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes.....	3.25c.
Bars, mild steel or iron.....	3.15c.
Cold-finished rounds, shafting and screw stock.....	3.75c.
No. 24 black sheets.....	4.45c.
No. 10 blue annealed sheets.....	3.60c.
No. 24 galvanized sheets.....	5.25c.
Black corrugated sheets.....	4.65c.
Galvanized corrugated sheets.....	5.30c.
Structural rivets.....	3.65c.
Boiler rivets.....	3.85c.
Per Cent Off List	
Tank rivets, $\frac{7}{8}$ -in. and smaller.....	70
Machine bolts.....	50 and 5
Carriage bolts.....	47½
Lag screws.....	55 and 5
Hot-pressed nuts, square, blank or tapped.....	3.25c. off per lb.
Hot-pressed nuts, hexagons, blank or tapped.....	3.75c. off per lb.

& Iron Co. This makes the total purchase 5,500,000 tie plates, or approximately 35,000 tons, perhaps the largest order for tie plates ever placed. A revival of buying of tank plates for the Oklahoma and Texas oil fields is reported. Buying of structural steel for the same districts is responsible for improvement in warehouse business. Building in St. Louis is quiet.

Old Material.—There is a somewhat better feeling among dealers, but prices are no better. Rolling mill grades, such as steel and iron car axles and wrought iron bars and transoms, are 50c. a ton off. Consumers in this district are said to have heavy stocks of scrap, and they are not disposed to buy until their business improves. Railroad lists include: Southern Railway, 7000 tons; Rock Island, 8900 tons; Chesapeake & Ohio, 5200 tons; Wabash, 2000 tons; Missouri Pacific, 750 tons, and St. Louis-San Francisco, 600 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails.....	\$10.50 to \$11.00
Rails for rolling.....	15.25 to 15.75
Steel rails less than 3 ft.....	16.50 to 17.00
Relaying rails, 60 lb. and under.....	20.50 to 23.50
Relaying rails, 70 lb. and over.....	26.50 to 29.00
Cast iron car wheels.....	15.25 to 15.75
Heavy melting steel.....	13.00 to 13.50
Heavy shoveling steel.....	13.00 to 13.50
Frogs, switches and guards cut apart.....	14.00 to 14.50
Railroad springs.....	16.75 to 17.25
Heavy axle and tire turnings.....	10.50 to 11.00
No. 1 locomotive tires.....	16.00 to 16.50
Per Net Ton	
Steel angle bars.....	12.50 to 13.00
Steel car axles.....	17.50 to 18.00
Iron car axles.....	20.00 to 20.50
Wrought iron bars and transoms.....	18.00 to 18.50
No. 1 railroad wrought.....	11.75 to 12.25
No. 2 railroad wrought.....	11.50 to 12.00
Cast iron borings.....	9.00 to 9.50
No. 1 busheling.....	10.00 to 10.50
No. 1 railroad cast.....	14.50 to 15.00
No. 1 machinery cast.....	16.50 to 17.00
Railroad malleable.....	12.25 to 12.50
Machine shop turnings.....	6.50 to 7.00
Bundled sheets.....	7.50 to 8.00

Cincinnati

Pig Iron Mart Has Better Tone—Pre-Inventory Caution in Steel Buying

CINCINNATI, Nov. 16.—The pig iron market has a slightly better tone. Producers are less prone to sell foundry grades at low prices, since the severe competition from northern Ohio furnaces has abated to some extent in the past 10 days. Small tonnages of southern Ohio foundry iron have been booked by Ironton interests at \$20.50, base furnace. However, sales of sizable lots to old customers for first quarter delivery have been made at \$20. Because of the necessity of meeting competition from Lake producers in central Ohio, malleable iron is still quoted at \$19.50 to \$20. In fact, only a few single carloads have been booked on the latter basis. Jackson County silvery iron is quiet, since most consumers covered their requirements previous to Nov. 1, when the new schedule became effective. Prices are firm at \$23.50, base furnace, for 8 per cent, and sellers are refusing to take business for

delivery beyond Dec. 31. Demand for Southern iron has been light, but quotations are steady at \$20, base Birmingham. A local dealer has sold about 900 tons of Southern charcoal iron to roll makers in the Pittsburgh district. Although inquiries are negligible, a moderate number of sales are being closed quietly.

Based on freight rates of \$3.69 from Birmingham and \$1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base).....	\$23.69
Alabama fdy., sil. 2.25 to 2.75.....	24.19
Tennessee fdy., sil. 1.75 to 2.25.....	23.69
Southern Ohio silvery, 8 per cent.....	30.39
So. Ohio fdy., sil. 1.75 to 2.25.....	\$21.89 to 22.39
So. Ohio malleable.....	21.39

Reinforcing Bars.—Bids are being taken on approximately 1500 tons of bars for an addition to the Union Central Building, Cincinnati. The Arnold Engineering Co., Chicago, has been awarded a general contract for the new plant of the John Van Range Co., Cincinnati, calling for about 350 tons. New billet bars are bringing 2c., base Pittsburgh, and rail steel bars 1.90c., base mill.

Warehouse Business.—Sales in the first half of November were from 15 to 20 per cent ahead of those in the same period in October. Reinforcing bars and plates were the largest contributors to the increased bookings, although sheets and bands have been in much better demand. On the other hand, structural steel orders have fallen off sharply. Jobbers state that business in West Virginia and Kentucky, stimulated by the expansion of coal mining operations during the past month, has shown marked improvement. Prices are firm and unchanged.

Finished Material.—Sales in the past week have revealed strength in some products and a tendency toward weakness in others. While specifications and orders have not attained the volume reached in October, bars and structural steel have remained firm at current prices. In sheets, however, some of the small independent mills, with their backlogs rapidly dwindling, have offered black and galvanized sheets at \$2 less than the present schedule. In fact, consuming industries in general are taking only small lots of material to cover present needs, and resumption of buying on a broad scale is not anticipated until after the first of the year. Especially in the South is there a pronounced effort toward keeping inventories on Jan. 1 at the lowest possible point, because of heavy taxes imposed by many States. The unfavorable cotton situation also has had a depressing effect upon the sale of finished steel products in that territory. Closely following the announcement of the opening of books for 1927 by the American Sheet & Tin Plate Co., comes a similar bulletin from the Newport Rolling Mill Co. and several other producers in this territory. Despite the professed determination of sellers to keep sheet prices at present levels, black and galvanized have been quoted at 3c. and 3.85c., base Pittsburgh, respectively, in certain instances. There has been no shading in blue annealed sheets, however, which are steady at 2.40c., base Pittsburgh. Decreased operations in the automobile industry are reflected in the reduced specifications for automobile sheets. Bars and structural shapes are firm at 2c., base Pittsburgh. Plates are

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes.....	3.40c.
Bars, mild steel or iron.....	3.30c.
Reinforcing bars.....	3.30c.
Hoops.....	4.00c. to 4.25c.
Bands.....	3.95c.
Cold-finished rounds and hexagons.....	3.85c.
Squares.....	4.35c.
Open-hearth spring steel.....	4.75c. to 5.00c.
No. 24 black sheets.....	4.05c.
No. 10 blue annealed sheets.....	2.60c.
No. 24 galvanized sheets.....	4.90c.
Structural rivets.....	3.75c.
Small rivets.....	.65 per cent off list
No. 9 annealed wire, per 100 lb.....	\$3.00
Common wire nails, base per keg.....	2.95
Cement coated nails, base per 100-lb. keg.....	2.15
Chain, per 100 lb.....	7.55
Net per 100 Ft.	
Lap welded steel boiler tubes, 2-in.....	\$18.00
4-in.....	38.00
Seamless steel boiler tubes, 2-in.....	19.00
4-in.....	39.00

bringing 1.90c., base Pittsburgh. There have been no changes in wire products, common wire nails being sold at \$2.65 per keg, Ironton or Pittsburgh, and plain wire at \$2.50 per 100 lb., Ironton or Pittsburgh.

Coke.—Signs of weakness are evident in the local market. While prices are unchanged at last week's high level and little beehive coke from the Wise County and New River districts is to be had, only small scattered sales have been made. This is due to the fact that most consumers have bought enough coke in the past month to satisfy their needs in the near future. Furthermore, the collapse of the British coal strike makes the lowering of present prices almost inevitable, and buyers are holding off to see what happens in the next 30 days. Wise County foundry coke ranges from \$5.50 to \$7, f.o.b. ovens. A local dealer has booked 1000 tons of beehive furnace coke for delivery during the first half of 1927. At least one Wise County producer has outstanding contracts calling for the passing on to customers of any wage increase received by coal miners. Accordingly, the advance in wages effective Nov. 1 will be felt by the consumers in this territory who have contracted for certain brands of Wise County coke, although the increased amount has not been announced. New River companies are asking \$9, ovens, but are not obtaining business at that figure. A local dealer is just closing a successful campaign to renew by-product foundry coke contracts for next year. Shipments of by-product foundry coke in the first half of November fell slightly short of those in the same period in October.

Based on freight rates of \$2.14 from Ashland, Ky., and \$2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Wise County foundry, \$8.59 to \$9.59; New River foundry, \$11.59; by-product foundry, \$9.64 to \$10.14.

Old Material.—Consumers are showing little interest, and dealers are having difficulty in disposing of material. Malleable grades are inactive, while gray iron foundries are confining their purchases to small lots. Steel plants are accepting shipments on contract but are unwilling to buy fresh stock. Railroads are reported to have received fairly good prices for their offerings last week. Heavy melting steel is off 50c. a ton, and some other items are weak.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel.....	\$12.50 to \$13.00
Scrap rails for melting.....	12.50 to 13.00
Short rails	17.50 to 18.00
Relaying rails	26.50 to 27.00
Rails for rolling.....	14.00 to 14.50
Old carwheels	12.00 to 12.50
No. 1 locomotive tires.....	16.50 to 17.00
Railroad malleable	14.50 to 15.00
Agricultural malleable	13.50 to 14.00
Loose sheet clippings.....	7.00 to 7.50
Champion bundled sheets.....	8.50 to 9.00
Per Net Ton	
Cast iron borings.....	7.50 to 8.00
Machine shop turnings.....	7.00 to 7.50
No. 1 machinery cast.....	17.00 to 18.00
No. 1 railroad cast.....	14.00 to 14.50
Iron axles	19.50 to 20.00
No. 1 railroad wrought.....	9.00 to 9.50
Pipes and flues.....	7.50 to 8.00
No. 1 busheling.....	9.00 to 9.50
Mixed busheling	5.50 to 6.00
Burnt cast	6.50 to 7.00
Stove plate	9.00 to 9.50
Brake shoes	9.50 to 10.00

Dover Iron Works Is New Name of Ulster Plant

With the resumption of operations at the plant of the Ulster Iron Works, Dover, N. J., on Nov. 1, after a shutdown of a number of weeks, new interests have become identified with ownership, and the company will be known in the future as the Dover Iron Works, Inc., with \$500,000 in capital stock, besides 6000 shares of no par value stock. The new organization has secured a State charter and contemplates maximum production at the plant, expanding bar iron manufacture to include other lines.

Birmingham

Demand for Pig Iron Lags—Steel Mills Run at High Rate

BIRMINGHAM, Nov. 16.—Little pig iron has been booked for delivery during the first quarter of next year, and there are few inquiries calling for shipment during that period. With inventory-taking approaching, melters are confining purchases to immediate requirements. The larger consumers have some stocks of iron in their yards. Barring uncertainty as to prices, there appears to be no possible market influence that would stimulate buying. Meanwhile the ruling price remains \$20, Birmingham, for No. 2 foundry iron, and furnaces are not anxious to quote that price for deliveries beyond this quarter. Ten blast furnaces in Alabama are on foundry iron, 11 are on basic, and one is on special iron. Plans for the holiday period indicate that there will be no interference with pig iron production. Among consuming industries, the longest shut-down will be a week, and some plants will be idle only from Tuesday or Wednesday of Christmas week until the following Monday.

We quote per gross ton f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.....	\$20.00
No. 1 foundry, 2.25 to 2.75 sil.....	20.50
Basic	20.00
Charcoal, warm blast.....	30.00

Rolled Steel.—Open-hearth furnace operations are even heavier than heretofore, and many of the finishing mills are operating at capacity on double turn. The rail mill of the Tennessee company, for example, is shutting down on Sundays only. An encouraging volume of tonnage has been placed by the railroads. A recession in demand is noted only in some of the lighter forms of steel, but even in those products business is still fair. Fabricating shops are busy. Mill prices remain unchanged as follows: Soft steel bars and structural shapes, 2.15c. to 2.25c. per lb., base Birmingham; tank plates, 2.05c. to 2.15c.; Nos. 9 and 10 blue annealed sheets, 2.60c. to 2.70c.; No. 24 black sheets, 3.30c. to 3.40c., and No. 24 galvanized, 4.20c. to 4.30c.

Cast Iron Pipe.—Pressure pipe shops are still busy shipping pipe as rapidly as it can be tested. While lettings have not been so numerous of late, present bookings and the building up of stocks for the usual early spring demand are expected to keep shops running at a steady pace through the winter. Demand for soil pipe continues to lag, being even less active than heretofore. Pressure pipe prices remain unchanged at \$39 to \$40, Birmingham, for 6-in. and larger diameters.

Coke.—With by-product coke plants in full operation, there is no surplus of coke, and demand is strong. Foundry coke is firm at \$5.50, Birmingham, for forward shipment and \$6 for spot delivery. Considerable foundry coke is being shipped to other districts. Railroad service in the movement of coke has been good, but there has been a shortage of cars in the coal fields. Coal producers have been participating in the more active demand both in the export and domestic markets.

Old Material.—Large orders for heavy melting steel have been placed, but other consumers are buying in small lots. Shipments of scrap are heavy. Dealers have bought considerable railroad scrap recently. Scrap prices remain unchanged.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical.....	\$15.00 to \$16.00
Heavy melting steel.....	13.00 to 14.00
Railroad wrought	11.00 to 12.00
Steel axles	17.00 to 18.00
Iron axles	17.00 to 18.00
Steel rails	13.00 to 14.00
No. 1 cast.....	16.00 to 17.00
Tramcar wheels	16.50 to 17.50
Carwheels	14.00 to 15.00
Stove plate	14.00 to 14.50
Machine shop turnings.....	8.00 to 8.50
Cast iron borings.....	8.00 to 8.50
Rails for rolling.....	15.00 to 16.00

Buffalo

Pig Iron Buying Still Heavy—Mill Operations Down to 70 Per Cent

BUFFALO, Nov. 16.—Pig iron bookings have been in good volume, though business pending has fallen off to approximately 7000 tons. One of the current inquiries is for 3000 tons of low silicon malleable, and there are several 500-ton lots pending in New England. Among orders recently placed was 1750 tons for a Batavia, N. Y., plant, of which 750 tons of malleable came to Buffalo and 1000 tons of foundry was placed with the Charlotte, N. Y., stack. A Buffalo furnace also booked 2000 tons of foundry iron from a plant in the metropolitan district. Another Buffalo furnace has taken one order for 3000 tons and another for 2000 tons. Most of the business booked is for first quarter delivery.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdy., sil. 1.75 to 2.25..	\$19.00 to \$20.00
No. 2X foundry, sil. 2.25 to 2.75..	19.50 to 20.50
No. 1X foundry, sil. 2.75 to 3.25..	20.50 to 21.50
Malleable, sil. up to 2.25.....	20.00
Basic	19.00
Lake Superior charcoal.....	27.28

Finished Iron and Steel.—Open-hearth and mill operations have fallen off to an average of not more than 70 per cent and probably nearer 65 per cent of capacity. Demand for bars has slackened with the tapering off of the automotive industry production, but prices remain unchanged. Structural shapes are firm. Sheet demand is sagging. Prices on No. 24 gage black range from 3c. to 3.10c., base Pittsburgh. Reinforcing bar dealers are figuring on 650 tons required in a new plant for the International Milling Co., Buffalo. The Statler Theater, Buffalo, requiring between 75 and 100 tons, including mesh, has been placed.

Old Material.—Except for the fact that the production of scrap has been radically cut, the lack of demand in this district would undoubtedly result in a great softening of the market. In view of the fact that the output of automobile scrap is off about 40 per cent and that of other grades a similar percentage, there has been no piling up of material despite the slowing down of open-hearth operations. A great many shipments are being held up by the mills, though the largest mill in the territory is receiving steady deliveries against its purchases. Prices of stove plate have dropped off to \$14.75 to \$15; one of the principal Buffalo district consumers offered the lower price a few days ago. Demand for all grades is extremely light.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel.....	\$15.50 to \$16.00
Selected No. 1 heavy melting steel	17.25 to 17.75
Low phosphorus	18.50 to 19.00
No. 1 railroad wrought.....	15.00 to 15.50
Carwheels	17.00 to 17.50
Machine shop turnings.....	10.50 to 10.75
Mixed borings and turnings.....	12.00 to 12.50
Cast iron borings.....	12.00 to 12.50
No. 1 busheling.....	15.00 to 15.50
Stove plate	14.75 to 15.00
Grate bars	13.00 to 13.50
Hand bundled sheets.....	10.50 to 11.50
Hydraulic compressed	15.00 to 15.50
No. 1 machinery cast.....	16.00 to 16.25
Railroad malleable	16.50 to 17.00
Iron axles	24.00 to 25.00
Steel axles	16.00 to 16.50
Drop forge flashings.....	13.75 to 14.25

Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes.....	3.40c.
Mild steel bars.....	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
No. 24 black sheets.....	4.30c.
No. 10 blue annealed sheets.....	3.80c.
No. 24 galvanized sheets.....	5.15c.
Common wire nails, base per keg.....	\$3.90
Black wire, base per 100 lb.....	3.90

REINFORCING STEEL

Awards About 2300 Tons—New Projects Up for Bids Total More Than 4000 Tons

With no awards of unusual size, the week's total of concrete reinforcing bars contracted for was about 2300 tons. The pending business reported this week amounts to more than 4000 tons, the largest item being 1500 tons for a Cincinnati office building. Awards follow:

BUFFALO, 100 tons, Statler Theater, to unnamed bidder.
 PITTSBURGH, 140 tons, Herron Hill High School, to Electric Welding Co.
 PITTSBURGH, 90 tons, foundation, Stanley Theater, to Electric Welding Co.
 BROOKLYN, 200 tons, factory building, American Can Co., to Jones & Laughlin Steel Corporation.
 KEARNY, N. J., 500 tons, factory building, Congoleum Nairn, Inc., to Faltoute Iron & Steel Co.
 NEWARK, 160 tons, Beth Israel Hospital, to McClintic-Marshall Co.
 NORTH BERGEN, N. J., 100 tons, factory building, International Folding Paper Box Co., to Joseph T. Ryerson & Son, Inc.
 SPRINGFIELD, ILL., 300 tons, grandstand State Fair Grounds, to Laclede Steel Co.
 CHICAGO, 130 tons, Hebard warehouse, to Olney J. Dean & Co.
 MADISON, Wis., 100 tons, theater, to American System of Reinforcing.
 SEATTLE, WASH., 500 tons, Liggett Building, to Pacific Coast Steel Co.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

NORTH ATTLEBORO, MASS., 100 tons, hotel.
 PROVIDENCE, R. I., 100 tons, gymnasium, Brown University.
 FLUSHING, L. I., 100 tons, warehouse; Moores & Dunford, Inc., architect.
 PATTERSON, N. J., 175 tons, office building, Bell Telephone Co.
 CINCINNATI, 1500 tons, addition to Union Central Building.
 CINCINNATI, 350 tons, building for John Van Range Co.; general contract to Arnold Engineering Co., Chicago.
 MAYWOOD, ILL., 180 tons, building for the Public Service Co. of Northern Illinois.
 CHICAGO, 580 tons, Lucy Flower Public School.
 EL DORADO, ARK., 175 tons, Court House.
 PHILADELPHIA, 100 tons, building for the Laurel Soap Co.
 BALTIMORE, 140 tons, municipal office building.
 BUFFALO, 650 tons, International Milling Co.
 CLEVELAND, 130 tons, Loew Theater.

Canadian Scrap Market Is Weak

TORONTO, ONT., Nov. 16.—While demand for iron and steel scrap in the Canadian market is chiefly confined to heavy melting steel, turnings, machinery cast and wrought scrap, sales of a few other lines have shown improvement during the past couple of weeks. The Canadian market, as a whole, however, is still comparatively weak, as the current demand is almost entirely for the immediate needs of consumers. Melters in the Hamilton, Ont., district continue to furnish the bulk of present business, although a better demand is appearing from outlying districts in Ontario for small tonnages of machinery cast. In the Montreal market business has strengthened slightly. This improvement is reported in scrap both for local consumption and on export. Inquiries from United States buyers are more numerous and are resulting in some fairly good orders. Canadian dealers' buying prices are unchanged, as follows:

	Per Gross Ton	
	Toronto	Montreal
Steel turnings.....	\$8.50	\$8.00
Machine shop turnings.....	8.50	7.00
Wrought pipe.....	6.00	6.00
Rails	11.00	10.00
No. 1 wrought.....	11.00	14.00
Heavy melting steel.....	11.00	9.00
Steel axles.....	16.00	17.00
Axles, wrought iron.....	18.00	19.00
Boiler plate.....	10.00	8.00
Heavy axle turnings.....	9.00	8.50
Cast borings.....	8.50	7.50
	Per Net Ton	
Standard carwheels.....	15.00	16.00
Malleable scrap.....	14.00	14.00
Stove plate.....	10.00	13.00
No. 1 machinery cast.....	16.00	18.00

NON-FERROUS METAL MARKETS

The Week's Prices	Cents per Pound for Early Delivery	Nov. 16 Nov. 15 Nov. 13 Nov. 12 Nov. 11 Nov. 10					
		Lake copper, New York	Electrolytic copper, N. Y.*	Straits tin, spot, New York	Lead, New York	Lead, St. Louis	Zinc, New York
		14.00	13.62½	71.00	8.00	7.80	7.60
		14.00	13.62½	70.50	8.00	7.80	7.25
		14.00	13.62½	70.25	8.00	7.80	7.25
		14.00	13.62½	70.12½	8.00	7.80	7.25
		14.00	13.62½	70.37½	8.00	7.80	7.20

*Refinery quotation; delivered price ¼c. higher.

NEW YORK, Nov. 16.—Buying of copper has been moderate and the price has been steady. The activity in tin has continued and consumers have bought heavily. Demand for lead is reported as satisfactory with prices firm. The zinc market is a little stronger with fairly good buying by galvanizers.

Copper.—Considerable buying of electrolytic copper by domestic consumers is reported for the week at 13.87½c., delivered, as apparently the minimum quotation. The market seems to have settled quite firmly at this level after some shading a week ago, but it is by no means very active. Statistics for October show practically no change in stocks of refined copper or metal above ground. The official price of Copper Exporters, Inc., was changed during the week from 14.25c. to 14.27½c., c.i.f. Hamburg, because of higher ocean freight rates. Sales for export are reported as having been very good. Lake copper is quoted at 14c., delivered.

Tin.—Sales of Straits tin have been fairly large with the total for the week ended Friday, Nov. 12, estimated at 1300 tons and possibly more. The market has been spotty with some days active and some days dull. Consumers did some buying, but most of the metal was taken by dealers. The largest day was Thursday, Nov. 11, when 500 tons changed hands. Yesterday, Monday, was a very active day and consumers were

exceedingly heavy buyers, taking at least 500 tons, including spot delivery and deliveries into March. At the close of the day, demand had not been entirely satisfied and there were bids of ¼c. over the top price for the day. The feature of yesterday's transaction is the fact that this is the first time that consuming demand has extended so far into the future. In the trade this distant buying is considered as significant, particularly in view of the heavy purchases a few weeks ago. London prices today were about £4 to £5 per ton higher than a week ago, with spot standard quoted at £313 10s., future standard at £302 5s. and spot straits at £323. The Singapore price today was £309 15s. Spot Straits tin today was quoted at 71c., New York, in a dull market. Arrivals thus far this month have been 3335 tons with 5365 tons reported afloat.

Lead.—The market has been quiet but featured by fairly heavy buying, demand for December being included. All consuming phases of the market are reported busy. This is the first week in some time in which there has been no change in prices. The leading interest maintains its contract price at 8c., New York, and the metal is available from other sources at the same level. The St. Louis quotation of most producers is 7.80c.

Zinc.—A firmer market has been brought about by two causes, one is the prospect of the settlement of the British coal strike, which would mean a heavier consumption of zinc in England, and the other is consistent buying nearly every day by American galvanizers. The market is a little higher with prime Western quoted at 7.25c., St. Louis, or 7.60c., New York, for early delivery.

Antimony.—Chinese metal for both spot and future delivery is quoted at 13.25c., New York, duty paid.

Nickel.—Wholesale lots of ingot nickel are quoted

Metals from New York Warehouse

Delivered Prices per Lb.

Tin, Straits pig	71.50c. to 72.00c.
Tin, bar	73.00c. to 73.50c.
Copper, Lake	15.00c.
Copper, electrolytic	14.75c.
Copper, casting	14.25c.
Zinc, slab	8.00c. to 8.50c.
Lead, American pig	8.75c. to 9.25c.
Lead, bar	11.25c. to 12.25c.
Antimony, Asiatic	14.50c. to 15.50c.
Aluminum, No. 1 ingot for remelting (guaranteed over 99 per cent pure)	30.00c. to 30.50c.
Babbitt metal, commercial grade	30.00c. to 40.00c.
Solder, ½ and ¼	43.00c. to 44.00c.

Metals from Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits pig	75.50c.
Tin, bar	77.50c.
Copper, Lake	15.00c.
Copper, electrolytic	15.00c.
Copper, casting	14.00c.
Zinc, slab	8.50c.
Lead, American pig	8.75c.
Antimony, Asiatic	18.50c.
Lead, bar	10.75c.
Babbitt metal, medium grade	21.75c.
Babbitt metal, high grade	50.25c.
Solder, ½ and ¼	44.00c.

Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base per Lb.

Sheets—	
High brass	18.87½c. to 19.87½c.
Copper, hot rolled	22.50c. to 23.50c.
Copper, cold rolled, 14 oz. and heavier	24.75c. to 25.75c.
Seamless Tubes—	
Brass	23.75c. to 24.75c.
Copper	24.50c. to 25.50c.
Brazed Brass Tubes	26.87½c. to 27.87½c.
Brass Rods	16.62½c. to 17.62½c.

From New York Warehouse

Delivered Prices, Base per Lb.

Zinc sheets (No. 9), casks	13.00c. to 13.25c.
Zinc sheets, open	13.50c. to 13.75c.

Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products and on lead full sheets are still being quoted at the reductions of Oct. 27 and Nov. 4, respectively. Zinc sheets have not changed for nearly four months.

On Copper and Brass Products, Freight up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets—	
High brass	18.87½c.
Copper, hot rolled	22.50c.
Zinc	11.75c.
Lead (full sheets)	11.75c. to 12.00c.
Seamless Tubes—	
High brass	23.75c.
Copper	24.50c.
Rods—	
High brass	16.62½c.
Naval brass	19.37½c.
Wire—	
Copper	15.87½c.
High brass	19.37½c.
Copper in Rolls	21.37½c.
Brazed Brass Tubing	26.87½c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 6 to 10 gage, 2 to 30 in. wide	27.50c.
Tubes, base	48.00c.
Machine rods	34.00c.

Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Customers' Doors in City Limits)

Sheets—	Base per Lb.
High brass	18 1/4c.
Copper, hot rolled	22.50c.
Copper, cold rolled, 14 oz. and heavier	24.75c.
Zinc	12.25c.
Lead, wide	11.25c.
Seamless Tubes—	
Brass	23.75c.
Copper	24.50c.
Brazed Brass Tubes	26 1/4c.
Brass Rods	16 1/2c.

at 35c., with shot nickel at 36c. and electrolytic nickel at 39c. per lb.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is obtainable at 27c. per lb., delivered.

Non-Ferrous Metals at Chicago

Nov. 16.—Copper sales are in fair volume but prices are being shaded on attractive business. Tin is stronger and there is considerable buying of this commodity. The old metals market is quiet and prices are nominal.

We quote, in carload lots, Lake copper, 14.12 1/2c.; tin, 71.50c.; lead, 7.90c.; zinc, 7.30c.; in less than carload lots, antimony, 15c. On old metals we quote copper wire, crucible shapes and copper clips, 10.75c.; copper bottoms, 9.75c.; red brass, 9.25c.; yellow brass, 8c.; lead pipe, 6.75c.; zinc, 5c.; pewter, No. 1, 35c.; tin foil, 43.50c.; block tin, 52c.; aluminum, 17.75c.; all being dealers' prices for less than carload lots.

RAILROAD EQUIPMENT**Orders Placed for 93 Locomotives—Rock Island Inquires for 2500 Cars**

Locomotives ordered during the week totalled 93, the Santa Fe taking 41 and the Seaboard Air Line 25. The Rock Island has inquired for 2500 freight cars. Details of the week's business follow:

The Atchison, Topeka & Santa Fe has ordered 41 locomotives from the Baldwin Locomotive Works.

The Seaboard Air Line has ordered 25 locomotives from the Baldwin Locomotive Works.

The Baldwin Locomotive Works has received an order for 13 locomotives for shipment to Brazil.

The Reading Railroad has contracted with the American Brown-Boveri Electric Corporation, Camden, N. J., for the building of six car floats, requiring about 2000 tons of plates.

The Pennsylvania Railroad will soon inquire for 68 electric passenger cars.

The New York, Chicago & St. Louis has purchased four 4-6-4-type locomotives from the American Locomotive Co.

The Pere Marquette has ordered 10 Mikado type locomotives from the American Locomotive Co.

The New York, New Haven & Hartford Railroad is in the market for 11 electric locomotives, 7 steam locomotives, 45 motor passenger cars, 37 trailers and 14 other cars to cost approximately \$6,669,693.

The Rock Island is in the market for 1000 box, 500 coal, 500 automobile, 250 flat and 250 ballast cars.

The Chicago & North Western has placed 8 baggage cars with the Pullman Car & Mfg. Corporation, 250 underframes and superstructures for box cars with the Ryan Car Co. and 250 underframes and superstructures with the General American Car Co.

The Pacific Fruit Express has placed 600 underframes with the Pacific Car & Foundry Co.

The Northern Refrigerator Lines have ordered 201 refrigerator cars from the Pullman Car & Mfg. Corporation.

October outbound freight of Worcester, Mass., made up largely of manufactured goods, amounted to 44,145 tons, as compared with 38,310 tons the previous month and 43,457 tons in October, 1925. For the first 10 months of this year the total was 377,909 tons, a gain of 12 per cent over the corresponding period of 1925. Building permits for the first 10 months totaled \$10,493,464, or 34 per cent less than in the corresponding period of 1925 which yielded a record total of \$15,889,501. October building amounted to \$1,550,610, 26 per cent less than for October, 1925.

Old Metals, Per Pound, New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators, and the selling prices are those charged consumers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	11.75c.	13.25c.
Copper, heavy and wire	11.50c.	12.00c.
Copper, light and bottoms	9.50c.	10.75c.
Brass, heavy	7.25c.	8.75c.
Brass, light	6.25c.	7.75c.
Heavy machine composition	9.00c.	10.25c.
No. 1 yellow brass turnings	8.50c.	9.00c.
No. 1 red brass or composition turnings	8.25c.	9.00c.
Lead, heavy	6.50c.	7.00c.
Lead, tea	4.75c.	5.50c.
Zinc	4.25c.	4.75c.
Sheet aluminum	16.50c.	18.50c.
Cast aluminum	16.50c.	18.50c.

Balanced Cradle in Car Dumper

(Concluded from page 1410)

and each motor has an electrically operated service brake which sets as soon as the current is cut off the motor.

The cradle hoist motors are 450 hp. each and are driven by separate direct-current generators located in the substation building at the end of the dumper. These motors are controlled by adjustment of the generator fields by magnetic controllers operated from the cab by a small master switch. The mule haulage rope is wound on a drum provided with a single herringbone gear which meshes with two driving pinions. Each of these pinions is connected by a flexible coupling to a 450-hp. direct-current motor. All motors are wound for 250 volt, direct current, built by the General Electric Co., and included may be mentioned a 295-hp. motor for the pan hoist.

Each of the power units in the substation consists of two 375-kw., 250-volt, direct-current generators direct connected to a single 1100-kva. synchronous motor operated on a 6600-volt circuit. One of these units is used for operating the cradle hoist and one for the mule haulage. One of the generators of a third set is used for motor field excitation for the synchronous and direct-current motors as well as for the operation of the direct-current auxiliaries. The second generator is a spare, which can be connected in series with the exciter, to supply power at 500 volts if desired. The control of the cradle hoist and the mule haulage are identical in principle and of the well known Ward-Leonard system.

Journal of the Institute of Metals

The new half-yearly issue of the Journal of the Institute of Metals is the largest volume of a long series. The majority of the 17 communications and discussions that go to form the first of the two sections of the book afford evidence of considerable editorial activity toward securing brevity. The papers reproduced were originally read at the spring meeting of the institute in May, 1926. Both practical and theoretical matters of moment in the metallurgical world are discussed by leading authorities, concluding with Professor Carpenter's classic May Lecture on "The Production of Single Crystals of Metals, and Some of Their Properties."

The second section of the volume, which is approximately equal in size to the first, is devoted to a well-arranged mass of abstracts of metallurgical papers published throughout the world. The scope of this "Abstracts Section" is indicated by the fact that the list of periodicals abstracted covers 11 closely printed pages. The abstracts—of which there are thousands—appear above the initials of competent authorities in the various fields explored. All are so fully indexed and cross-indexed, as are the contents of the original papers in the earlier section of the volume, that the names and subjects indices which complete the work cover upward of 100 pages.

FABRICATED STRUCTURAL STEEL

Awards for Week Total 25,000 Tons—Pending Work Amounts to 22,000 Tons

Structural steel awards for the week were about 25,000 tons, mostly jobs under 1000 tons. A machine shop in Detroit will take 3000 tons. Included in 22,000 tons of new work up for bids are three projects of fair size—an office building in Cincinnati, 3000 tons, a manufacturing building at Eddystone, Pa., 3500 tons, and an office building in Philadelphia, about 3500 tons. Awards follow:

MANCHESTER, N. H., 130 tons, roof, Manchester Consolidated Gas Co., to F. G. Lyons, Manchester.

BOSTON, 200 tons, sales room and service station, Pierce-Arrow Motor Car Co., to Levering & Garrigues Co.

NEW YORK, 1568 tons in the following awards as reported to the Structural Steel Board of Trade: Apartment building, Austin Place and Lefferts Avenue, Kew Gardens, and boys' club, 321-329 East 111th Street, to George A. Just Co.

NEW YORK, 1500 tons approximately, New York Central freight house, Twelfth Avenue and 125th Street, to Levering & Garrigues Co.

NEW YORK, 670 tons, apartment building, Marion Avenue, Bronx, to Alpha Iron Works.

NEW YORK, 475 tons, apartment building, Tremont and Davidson Avenues, Bronx, to Claremont Iron Works.

NEW YORK, 600 tons, stores and offices at West End Avenue and Sixty-fourth Street, to Easton Structural Steel Co.

NEW YORK, 1200 tons, apartment building, to Paterson Bridge Co.

NEW YORK, 1300 tons, Bronx Hospital, to Hedden Iron Construction Co.

NEW YORK, 1500 tons, Board of Transportation, city of New York, coal bunkers and outbuildings, to American Bridge Co.

STATE OF NEW YORK, 300 tons, three highway bridges, to unnamed fabricator.

NEW YORK, 550 tons, service station for the Borden Co., to unnamed fabricator.

BROOKLYN, 300 tons, parochial school, Fourth Avenue and Eighty-third Street, to Kues Brothers.

JERSEY CITY, N. J., 600 tons, addition to Erie Railroad refrigeration building, to unnamed fabricator.

MOUNT VERNON, N. Y., 560 tons, apartment building, to Yonkers Iron Works.

LAKE WORTH, FLA., 850 tons, two pier sheds, to Virginia Bridge & Iron Co.

DETROIT, 3000 tons, Dodge Brothers, Inc., machine shop, to Fort Pitt Bridge Works.

CLEVELAND, 500 tons, Phyllis Wheatley Home, to National Iron & Wire Co.

DAYTON, OHIO, 600 tons, assembly building at Wright Flying Field, to Mount Vernon Bridge Co.

WILKES-BARRE, PA., 2000 tons, high school, to McClintic-Marshall Co.

PITTSBURGH, 700 tons, Herron Hill High School, to Jones & Laughlin Steel Corporation.

CHICAGO, 300 tons, grill work and floor plates for the Crawford Avenue station of the Commonwealth Edison Co., to Vierling Steel Works, Chicago.

SPRINGFIELD, ILL., 300 tons, grandstand at State fair grounds, to unknown bidder.

JANESVILLE, WIS., 320 tons, addition to service supply building, Chevrolet Motor Co., to Lakeside Bridge & Steel Co.

MILWAUKEE, 400 tons, Uptown Theater for Saxe Brothers, to Milwaukee Bridge Co.

PORTAGE, WIS., 100 tons, reconstruction of Government locks on Fox River, to Lakeside Bridge & Steel Co.

MADISON, WIS., 1000 tons, theater, to American Bridge Co.

ST. LOUIS, 425 tons, service and parts building, Chevrolet Motor Car Co., to Mississippi Valley Structural Steel Co.

TULSA, OKLA., 600 tons, Chamber of Commerce Building, to Patterson Steel Co.

OKLAHOMA CITY, 1000 tons, bridges for Oklahoma State Highway Commission, to Virginia Bridge & Iron Co.

BERKELEY, CAL., 380 tons, addition to the J. F. Hink & Son department store, to Pacific Coast Engineering Co., Oakland.

LOS ANGELES, 620 tons, two 80,000-bbl. tanks for the Shell Oil Co., to Lacy Mfg. Co., Los Angeles.

LOS ANGELES, 620 tons, two 80,000-bbl. tanks for the Associated Oil Co., to Western Pipe & Steel Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

SOMERVILLE, MASS., 690 tons, First National Stores warehouse and bakery; previously reported as 300 tons.

DORCHESTER, MASS., 300 tons, highway bridge for the Massachusetts Power Commission.

PORTLAND, ME., 170 tons, church property, Immaculate Conception.

PROVIDENCE, R. I., 100 tons, bank, Morris Plan Co.

ATLANTIC CITY, N. J., 250 tons, Knights of Columbus club and hotel building.

CLEVELAND, 300 tons, Loew Theater; bids in.

CLEVELAND, 100 tons, Dangler Division American Stove Co., factory building.

PHILADELPHIA, 3000 to 4000 tons, Edison Building, Ninth and Sansom Streets; bids close Nov. 22.

PHILADELPHIA, 200 tons, Green Lane bridge.

EDDYSTONE, PA., 3500 tons, tender frame shop for Baldwin Locomotive Works.

PENNSYLVANIA RAILROAD, 700 tons, pole supports for electrification of road at Chester, Pa.

JACKSON, MICH., 500 tons, Jackson City Bank Building.

CINCINNATI, 3000 tons, Union Central Building addition.

CINCINNATI, 500 tons, building for John Van Range Co.; general contract to Arnold Engineering Co., Chicago.

LEXINGTON, KY., 500 tons, high school.

LOUISVILLE, 150 tons, administration building at University of Louisville; bids in.

LOUISVILLE, 100 tons, building for Louisville Water Co.; bids in.

LOUISVILLE, 100 tons, Park Theater; bids in.

CHICAGO, 400 tons, building at Erie Street and Michigan Avenue, for J. R. Farwell.

CHICAGO, ROCK ISLAND & PACIFIC, 600 tons, bridge spans.

NORTH PLATTE, NEB., 800 tons, bridge.

STATE OF NEVADA, 1000 tons, bridges for the Western Pacific.

SAN FRANCISCO, 100 tons, theater on San Bruno Avenue.

OAKLAND, 1400 tons, apartment building, Euclid Street and Grand Avenue; Judson Mfg. Co., San Francisco, low bidder.

LOS ANGELES, 930 tons, three 80,000-bbl. tanks for the California Petroleum Corporation; bids in.

PORTLAND, ORE., 1300 tons, warehouse.

SEATTLE, WASH., 800 tons, theater.

Pittsburgh Iron and Steel Market

(Concluded from page 1438)

of heavy melting steel has failed, because it involved creating a market for the secondary grade. Machine shop turnings are plentiful and easy. Low phosphorus scrap is a little stronger.

We quote for delivery to consumers' yards in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton
Heavy melting steel.....	\$17.00 to \$17.50
Scrap rails.....	16.25 to 16.75
No. 1 cast, cupola size.....	16.50 to 17.00
Compressed sheet steel.....	16.00
Bundled sheets, sides and ends.....	15.00
Railroad knuckles and couplers.....	18.50 to 19.00
Railroad coil and leaf springs.....	18.50 to 19.00
Low phosphorus blooms and billets.....	21.00 to 21.50
Low phosphorus mill plates.....	20.50 to 21.00
Low phosphorus, light grade.....	17.50 to 18.00
Low phosphorus punchings.....	18.50 to 19.00
Steel car axles.....	21.50 to 22.00
Cast iron wheels.....	16.00 to 16.50
Roller steel wheels.....	18.50 to 19.00
Machine shop turnings.....	12.00 to 12.25
Short shoveling steel turnings.....	12.50 to 14.00
Sheet bar crops.....	18.00 to 18.50
Heavy steel axle turnings.....	16.50 to 16.00
Short mixed borings and turnings.....	12.00 to 12.50
Heavy breakable cast.....	15.00 to 15.50
Cast iron borings.....	13.00 to 13.50
No. 1 railroad wrought.....	12.00 to 12.50
No. 2 railroad wrought.....	17.00 to 17.50
Railroad or automobile malleable scrap.....	17.00 to 17.50

In an article on the new blast furnace of the St. Louis Coke & Iron Corporation, Granite City, Ill., in THE IRON AGE of Nov. 11, page 1342, it was stated that the lining was to be made of Olive Hill brick furnished by Harbison-Walker Refractories Co., Pittsburgh. That company which furnished the brick, has plants at Olive Hill, Ky., but does not make the "Olive Hill" brand, which is produced by another manufacturer.

PERSONAL

George E. J. Pistor, whose election to the treasurer-ship of the American Institute of Steel Construction, Inc., was announced in THE IRON AGE of Nov. 4,



G. E. J. PISTOR

has been actively engaged in the structural steel industry since his graduation from Cornell University 25 years ago. First entering the business in the drafting room of the McClintic - Marshall Co., Rankin, Pa., he later became a draftsman for the Hay Foundry & Iron Works, Newark, N. J. Following experience in the designing and estimating departments of this company he was appointed contracting manager, a position he has held for the last 10 years. As an advocate of modern merchandising methods in the structural steel business, Mr. Pistor has been actively associated with the

steel trade associations, acting as a director of the American Institute of Steel Construction since its organization. He is a member of the American Society of Civil Engineers and of the Engineers' Club, New York.

Donald R. Simonds, formerly in the Boston office of Rogers, Brown & Crocker Brothers, Inc., and more recently with Hickman, Williams & Co., has become identified with the Equitable Life Assurance Society, New York.

C. M. Peter, formerly of the Kansas City, Mo., branch of the Black & Decker Mfg. Co., Towson, Md., and for the last year in charge of the formation of Black & Decker, Ltd., 79 A Great Queen Street, Kingsway, London, England, has been placed in charge of the entire export business of the Black & Decker organization. Col. W. V. Franklin has been appointed managing director of Black & Decker, Ltd., and has returned to England after a three months' visit at the company's American plant and branches. Oswald C. Kanitz, who recently has been appointed representative in continental Europe for the Black & Decker company, is spending three months at the company's home offices before assuming his duties abroad.

Thomas T. Harrow, for the past four years assistant to the vice-president, Bethlehem Steel Export Corporation, 25 Broadway, New York, has resigned to join the European personnel of the White Motor Co., Cleveland. Mr. Harrow was at one time with the United States Steel Products Co., later with the Vulcan Steel Products Co., and was for several years in the Consolidated Steel Corporation, joining the Bethlehem organization when the Consolidated was liquidated. He speaks several languages and in the past has spent considerable time in European capitals.

Charles W. Hunt, who for the past eleven years has been in charge of purchases and sales of steel for F. R. Phillips & Sons Co., Pennsylvania Building, Philadelphia, has resigned to engage in business for himself as a broker in iron and steel products, with office at the corner of Seventeenth and Market Streets, Philadelphia. He will operate under the name of the Charles W. Hunt Co.

E. LeRoy Harrington has joined the engineering department of the Blaw-Knox Co., Pittsburgh, and will specialize in the development of clamshell buckets for

use in steel mills, blast furnaces and at coal and ore docks.

J. W. Reading Johnson, son of M. E. Johnson, New York district manager for the Pittsburgh Steel Co., Pittsburgh, has opened a hardware store at Eatontown, Monmouth County, N. J.

Edward J. Costello, Jr., has joined the Philadelphia sales organization of the Blaw-Knox Co., Pittsburgh, and will specialize in the sale of standard steel buildings.

F. T. Gormeley has been appointed general sales manager of the Haynes Stellite Co., New York, to succeed the late Charles G. Chisholm.

J. E. Smith, works superintendent Mansfield, Ohio, plant, Westinghouse Electric & Mfg. Co., has been promoted director of manufacturing methods and machine tool equipment. In his new position Mr. Smith will be responsible for the study of cost reductions and will assist in the administration of a development program now in effect. He has been with the Westinghouse company for 27 years and since 1919 has been works superintendent at Mansfield.

George A. Richardson, manager technical publicity department, Bethlehem Steel Co., Bethlehem, Pa., gave an illustrated talk on the manufacture of steel and steel products before a gathering of business men at the City Club, Boston, on Nov. 3. The following evening he addressed consulting engineers and representatives of steel and machine tool companies at the Boston Chamber of Commerce on the two types of Diesel engines.

Paul S. Clapp, recently special assistant to Secretary of Commerce Hoover in engineering, economic and commercial problems, has been appointed managing director of the National Electric Light Association, to succeed M. H. Aylesworth, who resigned recently. Upon graduation from Iowa State College in 1913, he was employed in the engineering department of the Western Electric Co., Chicago. Later he served as assistant purchasing agent for the Allied Machinery Co. at Chicago.

Clifford D. Caldwell, president By-Products Coke Corporation, Chicago, has been elected a director of the Continental and Commercial National Bank, Chicago.

J. O. Keller, head of the department of engineering extension at Pennsylvania State College addressed the regular monthly meeting of the Pittsburgh Foundrymen's Association on Nov. 15 at Fort Pitt Hotel, Pittsburgh, on the subject of "Foreman Training."

L. P. Ross, who for 15 years was general manager in charge of operations for the Northern Iron Co. and who later was vice-president in charge of operations of the Replogle Steel Co., Wharton, N. J., will sail for Australia next week as consulting engineer for the Broken Hill Proprietary Co., Ltd., Newcastle, New South Wales. The company has three blast furnaces in operation and is considering the erection of a fourth. Mr. Ross will superintend the modernizing of the present furnaces and should the fourth be constructed will have to do with the engineering work in connection with it.

Charles E. Coles has joined the hot and cold-rolled strip steel sales department of the Acme Steel Co., 2840 Archer Avenue, Chicago. He was formerly with the Standard Steel & Wire Co. and the Steel Sales Corporation.

William J. Breen, formerly New England representative Sloss-Sheffield Steel & Iron Co., Birmingham, and more recently representative for New York pig iron interests, has resigned to enter the raw materials business.

Karl A. Blomberg, for many years associated with Theodore Geissman & Co., Chicago, has joined the Steel Mill Products Co., Monadnock Block, Chicago, as vice-president. He will devote his time to sales development of sheet steel, wire, nails, reinforcing bars, bolts and nuts.

A. J. Gerlach, formerly advertising manager Kearney & Trecker Corporation, Milwaukee, has been appointed advertising and sales promotion manager for the Sterling Motor Truck Co., Milwaukee.

A. E. Martell, formerly with the American Engineering Co., Philadelphia, has been appointed sales manager Maris Brothers, Inc., Philadelphia, maker of cranes and hoists.

R. H. Hagner, formerly in the Philadelphia office of the Link-Belt Co., Chicago, has been placed in charge of the company's newly established headquarters at 152 Temple Street, New Haven, Conn., and will devote his time to the sale of the Link-Belt silent chain and roller chain.

Robert C. Cockburn, until recently an assistant manager for the Stainless Products Sales Co., Watervliet, N. Y., has been appointed assistant trade commissioner, Department of Commerce, at Calcutta, India. Following graduation from Union College, Schenectady, N. Y., he pursued courses at the Steel Improvement & Forge Co., Cleveland, and the Ludlum Steel Co., Watervliet, N. Y. Since leaving the Stainless Products Sales Co., he has been located at Kingston, Jamaica.

C. W. Laughlin, one of the founders and for many years a partner in the Laughlin-Barney Machinery Co., Pittsburgh, has re-entered the machine tool business as sales manager for the J. S. Miller Machinery Co., 107 Water Street, Pittsburgh.

George S. Danforth has been appointed contracting engineer, fabricating division, and C. S. Boardman, contracting engineer, junior beam division, according to a recent announcement of the Jones & Laughlin Steel Corporation, Pittsburgh.

P. Roberts Baker has resigned the position of assistant to the president of Lukens Steel Co., Coatesville, Pa., and has purchased the United States Lock & Hardware Co., Columbia, Pa. He was appointed assistant to the president of the Lukens company only a few months ago; before that he was for a time manager of production.

E. A. Clifford, assistant general purchasing agent for the Santa Fe, has been appointed general purchasing agent for the Chicago & North Western, effective Dec. 1, to succeed Frank J. Berck, who becomes acting supervisor of standards for the North Western. Mr. Clifford entered the purchasing department of the Santa Fe in 1901, and was made chief clerk in 1910. In 1913 he became assistant general purchasing agent. He was a member of the purchasing committee of the Central Western Region during the Government railroad administration.

Changes in Personnel of Hanna Furnace Co.

The Hanna Furnace Co., Cleveland, has announced the following shifting of some of its blast furnace personnel. P. J. Moran, who has been located in Cleveland, has been transferred to Detroit as manager of the Detroit furnaces. V. W. Aubel, formerly located at Detroit, has been transferred to Buffalo as assistant to Barney Marron, manager of the Buffalo furnaces. J. R. Comstock, whose headquarters have been in Cleveland, has been transferred to Dover, Ohio, as manager of the Dover furnace and of the Cherry Valley furnace at Leetonia, Ohio. The office of W. T. Clarke, the company's engineer, has been removed from Cleveland to Detroit.

Testing Society's Fund for Marburg Lecture and Dudley Medal Assured

Sufficient money has been subscribed to insure a fund for the Charles B. Dudley Medal and the Edgar Marburg Lecture of the American Society for Testing Materials. According to a report of the committee collecting this fund, the balance on Oct. 1 after all expenses had been paid was \$7,772.27. After the expense for the design and the dies of the medal has been met, the balance of the fund will be permanently invested and this will make possible the adequate financing of both undertakings, which were authorized by the society a year ago.

The committee for selecting the 1927 Marburg lecturer has been appointed as follows: W. H. Fulweiler, chemical engineer United Gas Improvement Co., Philadelphia, chairman; T. G. Delbridge, process supervisor Atlantic Refining Co., Philadelphia; F. E. Schmitt, associate editor *Engineering News-Record*, New York.

The committee which will select the recipient of the Dudley medal award for the coming year has been appointed as follows: M. E. McDonnell, chief chemist Pennsylvania Railroad System, Altoona, Pa., chairman; William Campbell, Howe professor in metallurgy, Columbia University, New York; A. T. Goldbeck, director Bureau of Engineering, National Crushed Stone Association, Washington. This committee will review the eligible technical papers presented at the annual meeting last June, and will select the one of outstanding merit constituting an original contribution on research in materials which, in the opinion of the committee, deserves the award of the medal. This will be bestowed at the 1927 annual meeting.

From July 27 to Oct. 31 new members elected to the society totaled 102, bringing the entire membership on that date to 4145.

Foundry Equipment Business 17 Per Cent Ahead of Last Year

ATLANTIC CITY, N. J., Nov. 16.—Today's meeting at the Ambassador Hotel of the Foundry Equipment Manufacturers Association was featured by a discussion on pricing for profit developed by W. L. Churchill, consulting engineer, White Plains, N. Y., the author of a notable article on the subject in *THE IRON AGE* earlier this year and of an address presented at the Providence meeting in May of the National Machine Tool Builders' Association. Few manufacturers, said Mr. Churchill, have a definite idea of the profit necessary for success. More thought, he urged, should be given prices in relation to profits instead of pricing merely to secure volume or to meet competition.

The session was held jointly with the Foundry Supply Manufacturers Association. Reports of members showed the volume of business was 17 per cent above last year, comparing the nine months of this year with the corresponding period of 1925. The winter outlook was regarded as satisfactory.

Byers Option on Puddled Iron Plant

PITTSBURGH, Nov. 16.—To clarify various reports as to the acquisition of the American Puddled Iron Co., Warren, Ohio, by the A. M. Byers Co., Pittsburgh (*THE IRON AGE*, Nov. 11, page 1357), A. H. Beale, president of the latter, has issued the following statement: "On Nov. 1, the A. M. Byers Co. entered into a contract with the American Puddled Iron Co. whereby it leased for a term of two years, with an option of purchase, the plant on Mahoning Road, three miles north of Warren, Ohio. The Byers company will continue the experiments started some time ago at its South Side plant, Pittsburgh. These experiments will not be confined exclusively to the Aston process."

OBITUARY

PATRICK WILLIAM O'BRIEN, late assistant manager of sales, Illinois Steel Co., Chicago, whose death was reported in THE IRON AGE of Nov. 11, was an outstanding figure in the steel trade of the West. A rugged, forceful character, warm in his friendships, keenly appreciative of the point of view of others, and ever insistent upon fair play both in business and personal relations, he left a lasting impress on the industry he served for 40 years. Of studious habits and of more than ordinary talent in writing, he was nevertheless informal, unassuming and direct in his personal contacts. He had a personality that commanded respect without putting others at a distance. His first work after completing his education in Peterboro, Ont.,



P. W. O'BRIEN

was teaching school. He was also a newspaper reporter for a time, and as a result of that experience had a better appreciation than most steel men of the problems confronting publications serving the iron and steel industry. In 1886 he went to Chicago, where he first became identified with the steel business as a clerk in the office of J. C. Flemming, at that time Chicago district sales manager of the Carnegie Steel Co. His service with that company and later with the Illinois Steel Co. was continuous until the time of his death.

HAMILTON STEWART, vice-president Harbison-Walker Refractories Co., Pittsburgh, died at the Homeopathic Hospital in that city on Nov. 1. He had been associated with the Harbison-Walker company since 1889, and was also a director and member of the executive committee of the Crucible Steel Co. of America, New York, and a director of the Koppers Co., Pittsburgh. Mr. Stewart was active in civic and educational activities, and in 1925 was chairman of the campaign for funds to be used in the erection of the "Cathedral of Learning," University of Pittsburgh.

GEORGE K. RICH, a former member of J. & G. Rich, Inc., Philadelphia, manufacturer of engines and boilers, died at his home in that city Nov. 2. He was 77 years of age and had been retired since 1916.

HENRY CHOATE ORDWAY, formerly of Butts & Ordway Co., Boston, died Oct. 31 at his home in Winchester, Mass. He was born at Hempstead, N. H., Aug. 8, 1856, and was a graduate of Phillips Academy, Exeter, Yale College and Columbia Law School. He severed his connection with the iron and steel firm several years ago.

GEORGE F. TAYLOR, vice-president American Hardware Corporation, New Britain, Conn., and general manager Corbin Lock division, New York, died Oct. 29. In recent years he had devoted much time to the company's export business.

ARTHUR CARR SHERMAN, general superintendent Morris, Wheeler & Co., Inc., Thirtieth and Locust Streets, Philadelphia, died Nov. 9 at his home in Wayne, Pa. Following preparatory education at Phillips Academy, Andover, Mass., he studied two years in Switzerland, and was graduated in 1908 from

the Sheffield Scientific School of Yale University. He was a member of the engineering staff of the New York Central Railroad until 1917 when he became associated with the Morris, Wheeler organization. He was 40 years of age.

EDWIN M. SQUIER, until his retirement three years ago, vice-president of the New Jersey Zinc Co., died Nov. 9 at his home in Rahway, N. J. His death followed only three days after that of his brother, Stuart C. Squier, in Greenwich, Conn., also prominent in the zinc company during his active business life. The former Mr. Squier had been connected with the New Jersey Zinc Co. during the greater part of his business life and was prominently identified with many other business enterprises in New York. He was 74 years of age.

BURNSIDE EDWIN HAMILTON, assistant manager of sales, Illinois Steel Co., Chicago, died Nov. 11, at his home in Evanston, Ill. His death came only a week after that of P. W. O'Brien, assistant manager of sales in charge of the rail bureau of the same company. At the time of his death Mr. Hamilton was in active charge of the bar department of the Illinois Steel Co. He was born in Unionville, Conn., April 9, 1862, and received his early education there. After representing various bolt and steel manufacturers in the East he joined the American Steel Hoop Co. in 1900, and in 1902, when that company was absorbed by the United States Steel Corporation, became attached to the staff of the Illinois Steel Co.

THOMAS E. VAUGHN, for more than 10 years a member of the Pittsburgh sales organization of Manning, Maxwell & Moore, Inc., died suddenly at his home in Pittsburgh Nov. 8. He was born in Pittsburgh 54 years ago and had been identified with the machinery and machine tool business most of his life. He was with the R. D. Nuttall Co., Pittsburgh, for many years and resigned as superintendent of that company to engage in sales work. For the last year he had been with the Pittsburgh Gear & Machine Co., Pittsburgh.

EDWIN MCFARLAND, retired wholesale iron merchant, died in Cincinnati on Nov. 10. For many years he was the partner of James A. Green in the Matthew Addy Co., pig iron and coke dealer. He entered the business in 1870 and retired in 1914.

CHARLES K. H. BUNTING, since 1918 with Walter B. Snow & Staff, Inc., Boston, technical advertising agent, died suddenly on Nov. 14 as the result of a complication of pneumonia, pleurisy and meningitis. Mr. Bunting, who was born in New York about 45 years ago, was educated at the Massachusetts Institute of Technology and Worcester Polytechnic Institute. He served in the World War with the Canadian infantry from 1914 and with the Royal Flying Corps from 1916, being finally invalided from service in 1918 after being twice severely wounded.

EDWARD F. ABBEY, president Etna Machine Co., Toledo, Ohio, died Nov. 8, at his home in that city.

CHARLES G. A. PFITSCH, president International Bureau of Supplies, 347 Madison Avenue, New York, died at his home in New Rochelle, N. Y., on Nov. 14. He had gained a wide acquaintanceship in the iron and steel industry through the activities of his company in buying up and reclaiming empty shells in the years immediately following the war. He was in his fiftieth year.

THOMAS M. ADAMS, president Norton Iron Works, Ashland, Ky., died Nov. 13, from injuries received when he was struck by a motor truck a few hours before. He was 73 years of age, and had been identified with iron and steel interests of the Hanging Rock region during the greater part of his business life.

British Industry More Confident

Early Strike Settlement Expected—German Railroads Buy 800,000 Tons of Rails—
Central European Countries to Join Steel Cartel

(By Cable)

LONDON, ENGLAND, Nov. 15.

AN early settlement of the coal strike is now anticipated, but normal operation at blast furnaces is unlikely before January. Only five furnaces are in blast in Britain. Cleveland pig iron is scarce and there is a virtual famine in East Coast hematite. British consumers are taking large quantities of foreign pig iron at rising prices. Foreign ore is quiet. Business in finished steel has slackened pending decision of the strike, but mills have a good accumulation of orders which will permit active operations when the coal situation is normal. Works which are dependent on foreign semi-finished material are experiencing delays in deliveries.

The Continental steel market is showing signs of softness, although some products are still firm. The pig iron association has advanced No. 3 foundry to £4 per ton, f.o.b. Antwerp, but some French makers

are asking up to £4 5s. per ton. The wire rod cartel has raised its minimum price to £6 2s. 6d., f.o.b. Antwerp, with an extra 1s. 6d. charged on business with Britain. The German railroads have placed orders with the German Steel Syndicate for 800,000 tons of rails and have taken an option on a further 160,000 tons with Polish mills. Friedrichshütte in Siegerland has blown in its fourth furnace.

The tin plate market is firm and increased confidence is noticeable as a result of the possibility that normal production may be resumed in the near future. Meanwhile, domestic and export demand is moderate. Prompt tin plate is quoted at £1 5s. 3d., December shipment at £1 4s. to £1 4s. 6d. and first quarter shipment at £1 3s. 6d. to £1 4s., all per base box, f.o.b. works port.

Galvanized sheets are quiet, but makers are well booked and prices steady. Black sheets are dull with makers not inclined to name definite shipment.

MORE CARTEL MEMBERS

Central European Countries Expected Soon to Join—Are Factors in Near East

BERLIN, GERMANY, Oct. 31.—Entry of the smaller central European steel producing countries into the International Steel Cartel is considered assured. Recently, when negotiations with Czechoslovakia promised to end unsuccessfully because of the opposition of one company, the Czechoslovakian trade ministry intervened and success seems certain.

Inclusion of these smaller steel producing countries is an important and necessary step in the completion of the cartel. Although the total production of steel in these states is small, they occupy an important position in the near eastern markets and, bound by various trade agreements which practically constitute a small cartel, as outsiders they might seriously affect the prospects of success in the International Steel Cartel. The following table showing the 1925 production in

metric tons of iron, steel and rolled products in these countries is approximate, as Czechoslovakia issues no official statistics of production:

Country	Pig Iron	Steel	Rolled Products
Czechoslovakia ...	1,300,000	1,500,000	1,000,000
Poland	315,000	782,000	500,000
Austria	380,000	464,000	352,000
Hungary	100,000	230,000	100,000

In Austria, the Alpine Montan A. G., is practically the only producer of importance. The recently organized United Steel Works in Germany owns a majority of the Alpine company's stock. A few months ago the Alpine Montan A. G. concluded an agreement with three large Czechoslovakian works, the Prague Eisen, the Witkowitz Mining & Smelting Co. and the Skoda works, under which the Czechoslovakian plants reduce their exports of steel to Austria in return for which the Alpine works surrenders half its export market to Czechoslovakia. There is also an agreement of Austria, Czechoslovakia, Hungary and Yugoslavia governing the share of each country in the iron and steel trade with the near eastern countries. In

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.85 per £ as follows:

Durham coke, f.o.b.	£3 10s.	\$16.97
Bilbao Rubio ore†	1 0	4.85
Cleveland No. 1 fdy. (nom.)	6 5	30.31
Cleveland No. 3 fdy.	6 0	29.10
Cleveland No. 4 fdy.	5 19	28.85
Cleveland No. 4 forge	5 18½	28.73
Cleveland basic (nom.)	3 15 to £3 15½s.	18.18 to \$18.30
East Coast mixed	4 12½	22.43
East Coast hematite	4 8	21.34
Rails, 60 lb. and up	7 15 to 8 0	37.53 to 38.80
Billets	7 10 to 8 15	36.37 to 42.43
Ferromanganese	15 0	72.75
Ferromanganese	15 0	72.75
Sheet and tin plate bars, Welsh	6 15 to 7 10	32.73 to 36.27
Tin plates, base box	1 3½ to 1 5¼	5.70 to 6.12
Black sheets, Japanese specifications	15 5 to 15 15	74.11 to 76.53
		C. per Lb.
Ship plates	7 15 to 8 5	1.67 to 1.78
Boiler plates	10 11 to 11 0	2.23 to 2.34
Tees	8 5 to 8 15	1.79 to 1.89
Channels	7 10 to 8 0	1.61 to 1.72
Beams	7 10 to 7 15	1.57 to 1.68
Round bars, ¾ to 3 in.	8 5 to 8 15	1.79 to 1.89
Steel hoops	10 10 and 11 0*	2.23 and 2.39*
Black sheets, 24 gage	12 10 to 12 15	2.70 to 2.76
Galv. sheets, 24 gage	17 10 to 17 15	3.78 to 3.84
Cold rolled steel strip, 20 gage, nom.	18 0	3.91

*Export price.

†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports (Per Metric Ton)

Foundry pig iron: (a)	£4 0s. to £4 5s.	\$19.40 to \$20.61
Belgium	4 0 to 4 5	19.40 to 20.61
France	4 0 to 4 5	19.40 to 20.61
Luxemburg	4 0 to 4 5	19.40 to 20.61
Basic pig iron:		
Belgium	3 12 to 3 14	17.46 to 17.94
France	3 12 to 3 14	17.46 to 17.94
Luxemburg	3 12 to 3 14	17.46 to 17.94
Coke	0 18	4.27
Billets:		
Belgium	5 5 to 5 9	25.46 to 26.43
France	5 5 to 5 9	25.46 to 26.43
Merchant bars:		C. per Lb.
Belgium	5 13¼ to 5 17¼	1.24 to 1.28
Luxemburg	5 13¼ to 5 17¼	1.24 to 1.28
France	5 13¼ to 5 17¼	1.24 to 1.28
Joists (beams):		
Belgium	5 14 to 6 0	1.25 to 1.32
Luxemburg	5 14 to 6 0	1.25 to 1.32
France	5 14 to 6 0	1.25 to 1.32
Angles:		
Belgium	6 0	1.32
¾-in. plates:		
Belgium (nominal)	6 17¼ to 7 0	1.51 to 1.54
Germany (nominal)	6 17¼ to 7 0	1.51 to 1.54
¾-in. ship plates:		
Belgium	6 7¼	1.40
Luxemburg	6 7¼	1.40
Sheets, heavy:		
Belgium	6 3 to 6 4	1.33 to 1.34
Germany	6 3 to 6 4	1.33 to 1.34

(a) Nominal.

Hungary, the plants involved in these agreements are the Rima-Muranyi works, Manfred Weiss and the Dyosgyoer Iron Works, which is state owned. In Yugoslavia the plant entering the agreement is the Zenica Iron Works, also state owned.

In addition to these agreements there is a price arrangement with Rumania, where a proposal for increase of import duties on iron is under consideration. The position of Poland on entry into the International Steel Cartel is still doubtful, but Poland and Czechoslovakia are at present negotiating to arrive at a common policy to govern their entry and the two countries are reported to have agreed not to compete in their respective domestic markets. This is of interest inasmuch as Polish competition in Czechoslovakia has been active in recent months.

BELGIAN BUSINESS QUIET

Expecting Lower Prices, Buyers Delay Purchases —Mills Anticipate Higher Costs

ANTWERP, BELGIUM, Oct. 30.—The more stable position of Belgian currency is expected to exercise a desirable effect on the market, eliminating, as it probably will, the violent fluctuations in prices that have been quite usual in recent months. The position of Belgian mills, however, is not yet entirely satisfactory. Wages are an uncertain factor in the situation, with the cost of living still high and the possibility that the index figure on living costs may advance a further 20 to 25 per cent. In accordance with the recent advance in the index on cost of living, Belgian wages have been increased by 5 per cent and further advances will doubtless be made before long.

Another factor to be considered in costs is the increase in prices of coal and coke, caused partly by the depreciation of the franc, but largely by the British coal strike. In consequence of these uncertainties in the situation, neither the buyers nor the sellers are inclined to commit themselves for large tonnages. In the meantime, German exporters are still offering material for prompt shipment at less than the current price of Belgian mills. Belgian makers have apparently made concessions occasionally, although the large mills are well booked with business and not inclined to shade their original quotations.

Pig Iron.—Phosphoric foundry iron continues strong, with practically no stocks available and deliveries delayed until about Dec. 15. On domestic business, furnaces are quoting about 650 fr. per metric ton, f.o.b. furnace. British consumers are again purchasing sizable lots and prices for export to the United Kingdom have reached £4 to £4 2s. (\$19.20 to \$19.68) per ton, f.o.b. Antwerp. Furnaces are not inclined to accept much forward business because of the uncertainty of fuel costs. Bessemer hematite is quoted at £4 10s. to £4 12s. (\$21.62 to \$22.10) per metric ton, f.o.b. Antwerp.

Semi-Finished Material.—Prices have reached a new high level and the market is as firm as ever. Demand by British users has declined somewhat but is still large. Billets are quoted at £5 4s. to £5 5s. (\$25.22 to \$25.46) per ton; blooms are scarce and range in price from £4 12s. 6d. to £4 17s. 6d. (\$22.30 to \$23.63) per metric ton.

Finished Material.—Demand is limited and orders are considerably smaller than recently. German exporters are still quoting lower prices than are obtainable in the Belgian market, especially for bars. In some spots the market is showing a slight tendency to weakness, but the absence of any sizable business renders establishment of a minimum price difficult. Buyers, however, are convinced that lower prices are in prospect and whenever possible are delaying purchases. The large mills are still well booked with business and not inclined to shade, the tendency to concessions being confined to the finishing mills. Bar prices range from £5 13s. to £5 14s. per metric ton (1.22c. to 1.23c. per lb.), f.o.b. Antwerp, but there are reports among buyers that as low as £5 10s. per ton (1.19c. per lb.) is obtainable, although this is believed to be entirely confined

to the German exporters. Angles range from £5 14s. to £5 15s. per ton (1.23c. to 1.24c. per lb.), and beams are fairly firm at £5 12s. 6d. per ton (1.22c. per lb.). Corrugated reinforcing bars are quoted at about £6 2s. 6d. per metric ton (1.33c. per lb.), f.o.b. Antwerp.

JAPAN BUYS CAR SHEETS

Several Lots for Car Building and Repairs in the Market—European Steel High

NEW YORK, Nov. 16.—Japanese buyers have become more active recently and there are a number of small inquiries in the market from this source. Among current inquiries is a call for bids on 3 miles of 100-lb. rails for Osaka municipality. On Nov. 15, Yokohama municipality opened bids on 12 miles of 91-lb. high T-rails and 2 miles of 140-lb. guard rails. On Nov. 18 the Imperial Government Railways will open bids on 1983 splice bars for 60-lb. and 75-lb. rails.

There have been a number of black sheet inquiries recently and two small lots totaling less than 1000 tons are reported to have been placed with American mills by two Japanese export houses. Light gage black sheet prices continue at about \$83 to \$85 per ton, c.i.f. Japan, but most of the business is going at the \$83 price. Tin plate inquiry has decreased slightly, perhaps as a result of the expected settlement of the British strike. The export market on tin plate continues at \$4.60 to \$4.70 per base box, f.o.b. Pittsburgh. Purchases of steel sheets for use in car building are increasing. The Imperial Government Railways is understood to be inquiring for about 900 tons of heavy gage blue annealed sheets and the Dai Nippon Fertilizer Co. has closed on several hundred tons, of which about 190 tons went to the Mitsubishi Shoji Kaisha, New York, and about 200 tons were placed through another Japanese export house with the American Rolling Mill Co.

Importers of European steel selling to American consumers report considerably decreased activity as a result of higher prices now being quoted by European mills, particularly German. German sellers are quoting plain steel bars at 1.95c. to 2c. per lb., c.i.f. Atlantic port, duty paid, and French and Belgian mills are about 5c. per 100 lb. lower. These prices have so reduced the saving to the American consumer that sales are made with difficulty. There is some interest among importers in several foreign projects on which American contractors are competing. One of the larger of these is a highway through central Cuba.

FRENCH PRICES FIRM

Export Demand Quiet But Prices Continue Firm—Furnaces Offering Prompt Iron

PARIS, FRANCE, Oct. 27.—Business is quiet with buyers purchasing only absolutely immediate requirements. Domestic prices are being maintained and export quotations are still high. The pig iron market is also quiet and furnaces are offering prompt deliveries. A delegation of phosphoric iron producers recently went to Germany, to reopen negotiations under the French-German-Luxemburg agreement, for delivery to Germany of a large tonnage of pig iron on fixed conditions. It is reported unofficially that an agreement has been reached and will probably be signed to become effective within a few weeks.

Pig Iron.—Demand is light and quick deliveries are offered by sellers. The phosphoric iron producers have continued their selling conditions unaltered and although there has been no change in the price of medium phosphorus foundry iron, the differential between phosphoric and medium phosphorus is being diminished. The tonnage of phosphoric foundry, for domestic consumption in November, was reduced to 35,000 tons. Hematite iron producers have established prices for November at an advance of 10 fr. per ton. This action

is understood to have been taken to reduce the tendency of consumers to mix hematite and phosphoric iron, obtaining a mixture at a lower cost than the price of medium phosphorus iron. For domestic consumption 35,000 tons of hematite was established for November and tentatively 20,000 tons has been set as the December figure and 10,000 tons for January. Export demand for pig iron is still active, but prices are settling to about 630 fr. per ton, f.o.b. Antwerp.

Semi-Finished Material.—There is still a great shortage of billets, blooms and slabs in the domestic market as a result of the continued heavy export demand, largely from British users. Prices are firm and show a distinct tendency to advance. Billets are quoted at £5 5s. to £5 6s. (\$25.46 to \$25.70) per metric ton, slabs at £5 10s. to £5 12s. (\$26.67 to \$27.15) per ton and blooms have sold at £4 13s. 6d. (\$22.67) to as high

as £5 (\$24.25) per ton, f.o.b. Antwerp.

Finished Material.—Prices are advancing in some instances in the domestic market but export is less active than recently. Competition for small business coming from foreign buyers is keen with French and German exporters offering reductions to secure orders. Beams continue at £5 12s. 6d. per ton (1.22c. per lb.), f.o.b. Antwerp, with British users still offering as much as 5s. (\$1.21) per ton more for prompt shipment. While the quotation on bars is still £5 15s. per ton (1.25c. per lb.), very little tonnage is moving at this price. There are current reports of sales by German exporters of bars at £5 8s. to £5 9s. per ton (1.17c. to 1.18c. per lb.), but in most instances these are not credited. The sheet market continues firm and unchanged, with mills well booked and French, Belgian and German prices at about the same level.

Gain in Canadian Output of Castings, Hardware and Aluminum in 1925

TORONTO, ONT., Nov. 15.—The production of castings and forgings in Canada for the year 1925 totaled \$61,754,339 in value, which marked an increase of 7 per cent over the output of these products in the year 1924, which was valued at \$57,494,594. Those listed making these products include foundries and shops manufacturing stoves, furnaces, machines and machinery and miscellaneous castings or forgings, made to order for all purposes.

During 1925 the output of plants engaged primarily in the manufacture of automobile parts and accessories declined 29 per cent in value to \$11,234,828. In 1924 the production of this industry totaled \$15,744,388. Production of axles and automobile engines showed the greatest decline. On the other hand, imports of these commodities in 1925 reached more than double the value for the corresponding items in 1924; automobile engine imports rose to \$8,287,105 in 1925 from \$4,140,283 in 1924, and the imports of axles (other than railroad axles) were valued at \$3,424,802, as compared with \$1,647,679 in 1924.

The production of hardware and tools in Canada for the year 1925 amounted in value to \$17,882,650, or an increase of 15 per cent over the \$15,570,170 reported for the year 1924. In 1925 there were 112 plants in Canada engaged primarily in the production of such commodities as bolts, nuts, rivets, screws, razors, cutlery, forks, hoes, saws, rakes, axles, machine knives and tools, dies, drills, wrenches, etc.

The production of aluminum and its products in Canada for the year 1925 reached a selling value of \$9,137,305, as compared with \$7,700,822 in 1924. Of the 12 plants in operation in this industry, 11 were located in Ontario, and one in Quebec. The latter plant smelts bauxite ores to produce aluminum ingots and bars, while the other 11 were engaged in the manufacture of kitchen utensils and other fabricated wares. A large plant for the smelting of ores is now in the course of construction at Arvida, Quebec.

Decline in Steel Bar Production

YOUNGSTOWN, Nov. 16.—Operating schedules this week in the Mahoning Valley reveal a number of rather significant changes. With the independents, merchant steel bar production has declined to 50 per cent. Buyers, striving for lower prices, are withholding orders against a lower market, which producers have thus far successfully resisted. The United States Steel Corporation subsidiaries have curtailed their bar output in this area to a 75 per cent rate.

Of 53 independent open-hearth furnaces, 33 are active, two more than the preceding week, while Bessemer ingot output is at a 70 per cent basis. Steel pipe and skelp mills are active at 75 per cent, while 97 of the 127 sheet mills in the Mahoning Valley are under power. For the first time in many months, the

Haselton sheet mill group at Youngstown of the Sharon Steel Hoop Co. is inactive, down for repairs. On the other hand, the Waddell Steel Co., at Niles, has resumed with six mills active, following one week's suspension. The Newton Steel Co., heretofore operating 16 of its 20 mills at Newton Falls, has declined to 14 active.

The Sheet & Tube and Republic companies are maintaining production at a 70 per cent average. The Trumbull Steel Co. is at 80 per cent. At its Sharon property, the Sharon Steel Hoop Co. is operating four of six open-hearth furnaces and three of four strip mills. Finishing mills at the Girard, Ohio, works of the A. M. Byers Co., Pittsburgh, are inactive, but puddling mills are active at a high rate.

Steel Corporation's Unfilled Orders Again Increase Moderately

Unfilled orders of the United States Steel Corporation increased moderately in October. The total unfilled business on Oct. 31 amounted to 3,683,661 tons, an increase of 90,152 tons over the 3,593,509 tons on Sept. 30. The increase in September over August was 51,174 tons. In August the decrease was 60,187 tons. A year ago the unfilled business was 4,109,183 tons, or 425,522 tons more than at the close of October this year. The following table gives the unfilled tonnage as reported by months beginning with January, 1924:

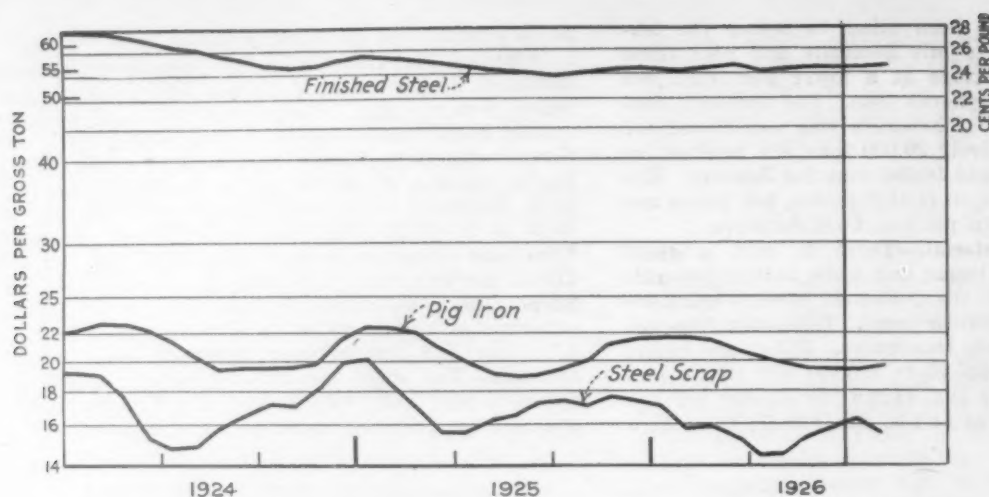
	1924	1925	1926
Jan. 31.....	4,882,739	5,037,323	4,798,429
Feb. 28.....	4,616,822	5,284,771	4,912,901
March 31.....	4,279,935	4,863,564	4,782,807
April 30.....	3,867,976	4,446,568	4,208,447
May 31.....	3,649,250	4,049,800	3,628,089
June 30.....	3,478,642	3,710,458	3,262,505
July 31.....	3,602,522	3,539,467	3,187,072
Aug. 31.....	3,542,325	3,512,562	3,289,577
Sept. 30.....	3,593,509	3,717,297	3,473,786
Oct. 31.....	3,683,661	4,109,183	3,525,270
Nov. 30.....	4,581,780	4,051,969
Dec. 31.....	5,033,844	4,816,676

The high record in unfilled orders was 12,183,093 tons at the close of April, 1917. The lowest was 2,674,757 tons on Dec. 31, 1910.

More Electric Trucks Shipped

October shipments of electric industrial trucks and tractors, as reported by the Department of Commerce, aggregated 134, compared with 97 in September. Increases were registered in all lines, there having been 18 shipped for export against 5; 18 tractors shipped for domestic use against 10 and 98 of all other types for domestic use against 82.

Taking a longer range view, however, the current months do not show the large movements of earlier in the year. The quarter ended Sept. 30 accounted for 305 units, compared with 363 units in the quarter ended June 30 and with 273 units in the first quarter of the year. The four quarters of 1925 averaged 360 units.



Steel Scrap Has Been Consistently Above the Level of Late Spring Ever Since the First of July. During the past month, however, it has shown a tendency to drop

Scrap Prices Falling After Rise from Low of Last Spring

AVERAGE prices of heavy melting steel scrap at Chicago, Pittsburgh and Philadelphia in October were \$15.58 per gross ton, compared with \$16.25 in September and \$15.88 in August. The rise of nearly \$2 between May and September has given place to a falling off since then.

Pig iron and finished steel, on the other hand, are showing a slow increase, October having been higher in both cases than in the preceding months since early summer. In fact, October was the highest month of the year for finished steel.

Both the table and the diagram tell the story of these three products, the table covering 22 months and the diagram almost three years.

Composite Prices on Iron and Steel Products

	Steel Scrap	Pig Iron	Finished Steel, Per Lb.
January, 1925.....	\$20.10	\$22.44	2.560c.
February	18.27	22.50	2.546c.
March	16.92	21.99	2.537c.
April	15.48	20.95	2.503c.
May	15.46	19.85	2.460c.
June	16.09	19.22	2.440c.
July	16.46	18.96	2.435c.
August	17.23	19.01	2.413c.
September	17.42	19.38	2.397c.
October	17.08	19.92	2.405c.
November	17.63	21.17	2.433c.
December	17.37	21.54	2.450c.
January, 1926.....	16.97	21.54	2.447c.
February	15.50	21.52	2.428c.
March	15.83	21.39	2.433c.
April	15.27	20.52	2.439c.
May	14.35	20.27	2.416c.
June	14.40	19.82	2.420c.
July	15.42	19.51	2.431c.
August	15.88	19.46	2.431c.
September	16.25	19.46	2.439c.
October	15.58	19.69	2.449c.

WIDER USE FOR GRATINGS

Rapidly Growing Need for Steel for Walkways and Coverings

Manufacture of steel grating for use in providing a strong flooring with a minimum weight, which at the same time admits a maximum amount of light, has led to the rapid development of a new use for steel. While practically unknown as a building material 15 years ago, steel grating has become one of the most important of the secondary structural components of a modern manufacturing plant. Its production has increased from less than 100,000 sq. ft. per year in 1912 to several million square feet in 1926.

Steel grating consists largely of intersecting steel bars, rods or other shapes, fastened rigidly at their intersections to provide a flooring which has met with wide favor in nearly every sort of manufacturing plant. Flooring of this sort has been used successfully in power houses, boiler rooms, overhead passageways, inspection platforms around machinery, walking surfaces over sidewalk vaults and areas, coverings for ventilator exhaust openings, screens for intake tunnels, hatch coverings on vessels, stair treads, and many other purposes where protective screening is required. Steel grating is also being used extensively for reinforcing the wearing surface of interior and exterior concrete roadways, subjected to exceptionally heavy trucking, as it is said to extend the life of the roadways indefinitely at only a slight increase in cost. In engine or machinery rooms where floors are likely to be damp and slippery grating has proved itself valuable in preventing accidents to workmen.

The purchaser of steel grating must consider not only the initial cost, but also the strength, ventilation, efficiency and rigidity. To insure minimum maintenance cost, all gratings, it is widely claimed, should be galvanized instead of painted. The chief objection to

steel gratings is unevenness, usually brought about by overloading, in which the ends of the bars of adjacent members project above each other at the joints between panels.

Seamless Tube Standards

For many years the National Tube Co. has published its handbook, "National Pipe Standards," the data relating to both welding and seamless tubular products. With the increasing use of seamless tubes the presentation of data relating to them in a separate volume has become desirable, and the company has now brought out "National-Shelby Tube Standards," a book of 208 pages dealing with the four classes of seamless tubular products, namely, boiler tubes, tubes for mechanical purposes, a third class embracing cylinders and flasks, and a fourth including various types of hollow forgings. Following the text, which describes the different processes of manufacture, also the grades of steel and anneals best adapted to specific requirements, there are many pages of data giving sizes, dimensions, weights, capacities and other properties. The average reader gets a surprise in the pages devoted to uses of seamless steel tubing, these indicating how rapidly the product has extended its field. A number of pages contain sectional illustrations of the uses to which seamless steel cylinders and automobile and other specialties are put. Considerable space is devoted also to relative physical properties, tolerances and machining of cold drawn and hot finished seamless mechanical tubing.

The Air Reduction Co., 342 Madison Avenue, New York, has leased the acetylene plants of the Commercial Acetylene Supply Co. at Berkeley, Cal., and Los Angeles, and will operate them in the future. The Commercial Acetylene Supply Co. will continue to operate its other plants without change in management.

World Steel Exports for 40 Years

British Largest Proportion of Total—America Leads for Any One Year—German Expansion Since the War

WASHINGTON, Nov. 12.—Exports of iron and steel from the important producing countries of the world for the 40-yr. period of 1886-1925 aggregated the formidable total of 324,392,891 gross tons, according to figures compiled by Marshall T. Jones, assistant chief iron and steel division, Department of Commerce, Washington. The countries include the United States, the United Kingdom, Germany, Belgium and France. Figures for Luxemburg are included with Germany up to May, 1922, and from then on with Belgium.

British Over 40 Per Cent of Total

The combined exports for the entire 40-yr. period, distribution and percentages among the countries, according to their rank, were as follows:

	Gross Tons	Per Cent of Total
United Kingdom.....	139,033,815	42.8
Germany	71,232,353	22.0
United States.....	63,435,677	19.5
Belgium	33,933,044	10.5
France	16,758,002	5.2

Omitting the war period of 1914-1918 inclusive, when there were no export figures for Germany and Belgium and, in fact, none published for Germany until 1920, the summary is as follows:

	Gross Tons	Per Cent of Total
United Kingdom.....	125,413,815	49.6
United States.....	40,474,103	14.1
France	16,437,432	5.7

While the countries at war used their own steel, or interchanged steel and did not merchandise it in a commercial way during the period each was engaged in the conflict, the credit for exports among them during the 1914-1918 period was tabulated according to official reports. With these figures omitted, the export movement for the 35-yr. period was 287,490,747 tons. Excluding the 5-yr. period, the German total was brought up to 24.8 per cent and the Belgian to 11.8 per cent.

Record for One Year Made by United States

The United States made the record of all time in exports of steel when in 1917 it sent 6,414,120 tons abroad, most of it due to the exigencies of war. The greatest yearly movement on record in any pre-war year was 6,394,347 tons exported from Germany in 1913. The largest annual export movement for the United Kingdom aggregated 5,084,948 tons in 1907. The smallest movement was in 1886, the United States taking the last position, moving only 21,095 tons to foreign countries. France led all countries in 1925 with 4,371,501 tons. The heaviest movement of exports for all the countries was 15,777,981 tons, made in 1913, when shipments from the United States represented 17.3 per cent

of the total. The next to the highest total was in 1912 with 15,232,533 tons, when United States exports were 19.2 per cent of the total.

Expansion by Germany

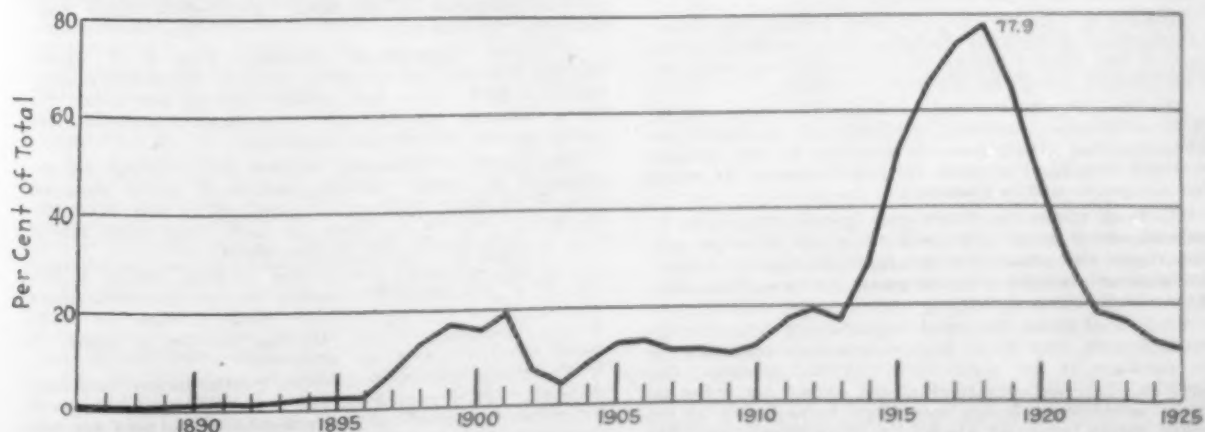
Perhaps the most striking feature of the data is the rapid upward swing of exports from Germany from 1910 to 1913, inclusive. In the former year Germany for the first time took the lead over the United Kingdom and increased it each succeeding year until the war broke out. But beginning with 1920, Germany again became an important factor in the world markets and in 1925 exported 3,000,907 tons of iron and steel.

The gain made by France and Belgium beginning with 1922 is also impressive. The United Kingdom lost heavily in 1921, 1924 and 1925, when its exports for these years are compared with those before the war. The American exports have fluctuated considerably since the war and have been considerably below those of the pre-war years of 1911-1913, inclusive.

Exports of Iron and Steel Products for 40 Years From the United States, United Kingdom, Germany, Belgium, and France—Thousands of Gross Tons

Year	United States	United Kingdom	Germany	Belgium	France	Total	
1886.....	21	3,388	493	458	40	4,407	
1887.....	22	4,143	556	495	77	5,394	
1888.....	29	3,966	477	468	46	4,987	
1889.....	37	4,136	458	523	101	5,366	
1890.....	46	4,001	469	483	39	5,039	
1891.....	48	3,240	605	430	48	4,373	
1892.....	44	2,739	549	438	35	3,906	
1893.....	66	2,856	610	408	29	3,970	
1894.....	78	2,649	740	445	35	3,960	
1895.....	80	3,825	816	503	46	4,382	
1896.....	110	3,550	816	601	22	5,162	
1897.....	411	2,636	756	597	97	5,548	
1898.....	717	2,244	834	613	91	5,501	
1899.....	1,026	2,717	764	603	81	6,190	
1900.....	851	2,540	825	503	49	5,799	
1901.....	1,126	2,598	1,388	546	93	5,752	
1902.....	496	2,268	2,093	687	156	6,702	
1903.....	310	2,454	2,165	850	229	7,009	
1904.....	676	2,226	2,727	802	262	7,494	
1905.....	1,133	2,671	2,296	953	301	9,357	
1906.....	1,331	4,633	3,608	1,015	239	10,827	
1907.....	1,230	5,084	2,401	1,019	291	11,027	
1908.....	1,161	2,993	2,676	963	346	10,141	
1909.....	1,059	4,128	2,979	1,129	297	10,603	
1910.....	1,396	4,428	4,791	1,296	283	12,196	
1911.....	2,179	4,358	5,304	1,376	263	13,483	
1912.....	2,931	4,601	5,925	1,537	236	15,232	
1913.....	2,722	4,691	6,394	1,558	411	15,777	
1914.....	1,545	2,655	Figures not available for the war period			228	5,430
1915.....	2,520	2,050				13	6,593
1916.....	6,098	2,188				23	9,310
1917.....	6,414	2,217				24	8,667
1918.....	5,372	1,507	Figures not available for the war period			19	6,899
1919.....	4,396	2,123				89	6,765
1920.....	4,927	2,079	1,722	943	493	11,066	
1921.....	2,209	1,556	2,181	903	778	7,578	
1922.....	1,985	3,353	2,612	1,913	1,053	10,814	
1923.....	2,010	4,192	1,307	2,441	2,066	12,016	
1924.....	1,805	3,660	1,924	3,351	3,209	13,951	
1925.....	1,763	3,553	3,000	3,113	4,371	15,803	

NOTE: Figures for Luxemburg are included with Germany up to May, 1922, and from then on with Belgium.



American Percentage of World Steel Exports from 1886 to 1925. The peak was 6,414,000 tons or 77.9 per cent in 1917

Machinery Markets and News of the Works

BUYING LESS ACTIVE

November Machine Tool Business Expected to Be Below That of October

Last Month Best Since Fall of 1925, but Year-End Let-Down Would Not Be Surprising, Says Tool Builders' Association

ALTHOUGH October orders for machine tools were at the highest point since last fall, according to the monthly report of the National Machine Tool Builders' Association, the indications for November, based on reports to THE IRON AGE, are that this month will show a recession. In the opinion of the association "it would not be surprising to find November and December business somewhat less than the past month."

New York

NEW YORK, Nov. 16.

MACHINE tool business in this district is disappointingly slow. Buyers, perhaps, sense a slight slowing up in some lines, a not unusual condition with the year-end approaching, and are no doubt postponing all but very necessary purchases until the new year. There is a fair number of scattered small orders, but no buying of outstanding importance. Among the week's purchases are the following: Jig boring machine by a company at Geneva, N. Y.; 20-in. geared-head lathe by an Ampere, N. J., electrical plant; 20-in. geared-head lathe by a die castings company at Garwood, N. J.; a 13-in. geared-head lathe by a high school at Whittier, Cal.; 13-in. geared-head lathe by a Boston manufacturer; 13-in. geared-head lathe by a Cincinnati tool builder; a vertical surface grinder by a Hamilton, Ohio, tool works; a thread milling machine by a Lansing, Mich., motor car company; an automatic milling machine by a Chicago company; automatic milling machine by a New Britain, Conn., manufacturer; a vertical shaper by Delco Light Co., Dayton, Ohio.

C. E. Halback & Co., 189 Banker Street, Brooklyn, manufacturers of ornamental iron and steel products, have awarded a general contract to the R. H. Howes Construction Co., 103 Park Avenue, New York, for a two-story addition to cost approximately \$45,000. Stasse & Barnes, 175 Fifth Avenue, New York, are architects.

Edwards & Co., Exterior and 140th Streets, New York, manufacturer of electrical specialties, have awarded a contract to the Barney Ahlers Construction Corporation, 110 West Fortieth Street, for a one-story addition.

The Merit Corrugated Paper Products Co., Gates and St. Nicholas Avenues, Brooklyn, manufacturer of boxes and containers, has leased space in Building No. 10, Atlantic Terminal, Brooklyn, effective early in February, at which time equipment will be installed.

The Mack Motors Co., Washington Avenue, Albany, N. Y., has preliminary plans under way for a new one-story service, repair and garage building at 504-16 Central Avenue, to cost about \$200,000 with equipment. Albert Kahn, Inc., Marquette Building, Detroit, is architect and engineer.

The United States Industrial Alcohol Co., 110 East Forty-second Street, New York, has concluded arrangements for the purchase of the plant of the Crystal Chemical Co., Anaheim, Cal., and will remodel and extend for industrial alcohol production. A new subsidiary, to be known as the United States Industrial Alcohol Co. of California, Inc., has been organized to take over and develop the plant.

This week's reports, with one exception, point to a reduced business this month. Chicago mentions November sales as being in good volume, probably better than October, but this is not the general observation in other sections.

In the Cincinnati district shipments are at a good rate, but fresh bookings must increase soon if some of the smaller plants are to maintain present working schedules. A few of the larger plants have sufficient business on hand to assure steady production for the remainder of the year.

Considerable inquiry from automobile manufacturers and allied companies is pending, but orders at present are not as numerous as in recent months.

Railroad inquiry contains nothing of importance except the Norfolk & Western list on which the trade has been figuring for several weeks.

Burke & Olsen, 32 Court Street, Brooklyn, architects, have plans under way for a two-story ice-manufacturing plant, 80 x 100 ft., at 730-40 Voorhees Avenue, for a company whose name is temporarily withheld, to cost close to \$60,000, with equipment.

The Torino Wrought Iron Mfg. Co., New York, has leased property at 215 East Twenty-third Street, for a new shop and headquarters.

The Board of Education, Park Avenue and Fifty-ninth Street, New York, has approved plans for two new schools in Queens Borough, both to be provided with manual training shops and laboratories. One structure will be located at Springfield, estimated to cost \$614,000, and the other at St. Albans, to cost about \$591,000.

The Federal-Brandes, Inc., Woolworth Building, New York, has been organized by officials of the Federal Telegraph Co., San Francisco, and the Brandes Co., Inc., Woolworth Building, both manufacturers of radio equipment, to consolidate the two organizations. The new company is capitalized at \$10,000,000 and will continue the operation of present plants at Newark, N. J., Palo Alto, Cal., Toronto, and in England. Plans are under way for expansion. The Federal-Brandes, Inc., will also be identified with another new company formed under Delaware laws, to be known as the Federal Telegraph Co. of Delaware, Inc., to operate in China. Rudolph Spreckels, San Francisco, is chairman of the board of Federal-Brandes, Inc., and Ellery W. Stone, president.

The Air Reduction Co., 342 Madison Avenue, New York, has concluded negotiations for the purchase of a controlling interest in the Commercial Acetylene Supply Co., Inc., 80 Broadway, specializing in the manufacture of car-lighting equipment, with plant at Bound Brook, N. J. Operations will be continued as heretofore, with plans under consideration for expansion.

G. Saxton Thompson, 257 Broadway, Troy, N. Y., architect and engineer, has completed plans for a four-story automobile service, repair and garage building, 100 x 150 ft., for a company whose name is temporarily withheld, reported to cost \$130,000 with equipment.

The Board of Education, Bayonne, N. J., plans the installation of manual training equipment in its proposed three-story senior high school estimated to cost \$1,000,000, for which Gregory B. Webb, 10 East Forty-third Street, New York, architect, will prepare plans.

The Arrow Carrier Corporation, 45 Park Street, Paterson, N. J., has awarded a general contract for a one-story addition, 75 x 100 ft., to G. De Ronde & Sons, 76 Union Avenue, estimated to cost \$23,000. Fanning & Shaw, 49 Ward Street, Paterson, are architects.

The Public Electric & Gas Co., Public Service Terminal, Newark, has arranged for a preferred stock issue of \$15,000,000, a portion of the proceeds to be used for extensions and improvements in power plants and system. Thomas N. McCarter is president.

The Thatcher Furnace Co., 39 St. Francis Street, Newark, manufacturer of house-heating boilers, furnaces, etc., has awarded a general contract to the Wigton-Abbott Corporation, 552 West Twenty-third Street, New York, for extensions and improvements in property at Garwood, N. J., recently acquired for a branch plant. The main unit will be one and two stories, 100 x 200 ft., fronting on South Street.

The Auto Strop Safety Razor Co., 656 First Avenue, New York, has acquired additional property, 60 x 285 ft., at its branch plant at Newark, N. J., and will use for future expansion. The company now has close to 5 acres at this location, and is said to be considering the consolidating of all production at this point.

The Sound Machine Shop, Inc., Mamaroneck, N. Y., light machine work and salvaging tools, has changed its name to the Sound Marine & Machine Shop, Inc.

The Standard Laundry Machinery Co., a new corporation whose counsel is Benjamin Gordon, 2 South Broad Street, Elizabeth, N. J., has been organized to manufacture laundry machinery. The company has plans for the construction of a new manufacturing plant.

The name of Kirby-McCool-Cyphers, 178 Commerce Street, Newark, N. J., machinery dealers, has been changed to Kirby-McCool.

The Dunbar Molasses Co., 565 Fifth Avenue, New York, has had plans prepared by the F. G. Schaefer Iron Works, 207 East Forty-third Street, New York, engineer and contractor, for a boiler house at its plant in Weehawken, N. J.

The Amdyco Fire Equipment Co., 127 West Thirtieth Street, New York, has been organized with a capital stock of \$25,000 for the marketing of Amdyco charges and foam stabilizers and other fire extinguishing equipment. For the present all manufacturing will be done under contract.

Edward M. Lawler, Metuchen, N. J., has been incorporated with 1000 shares of no par value stock, and will build ball mills and pulverizing machinery. It will also deal in all kinds of used machinery.

The United Sheet Metal Co., 98 West Twenty-sixth Street, Bayonne, N. J., has been organized as manufacturer and jobber of sheet iron, tin plate, leaders, elbows, galvanized pipes, etc.

The Mill Dock & Supply Co., New York, represented by Frank B. Washburn, 36 West Forty-fourth Street, has leased with option to purchase the block front property on the East River, 104th to 105th Street, 100 x 200 ft., and plans the immediate construction of a new coal receiving and shipping plant, with hoisting, conveying, loading and other equipment. It will cost about \$200,000 with machinery.

The Board of Transportation, 49 Lafayette Street, New York, J. H. Delaney, chairman, is arranging for the enclosure and completion of a fourth addition to its car repair shops at Lenox Avenue and 148th Street.

Buffalo

BUFFALO, Nov. 15.

THE Bethlehem Steel Corporation has plans for a new one-story steel fabricating shop at its No. 1 bridge works, Buffalo, to cost approximately \$125,000 with equipment.

The Domex Co., Akron, N. Y., manufacturer of steel furnaces, chair irons, etc., recently acquired by the J. E. Gilson Co., Port Washington, Wis., will be removed to the last noted place and operations discontinued at Akron. The Port Washington plant will be increased to accommodate the expansion; the Domex furnaces will be manufactured as heretofore.

The Metric Metal Works, Payne Avenue and Nineteenth Street, Erie, Pa., is reported to be planning a one-story addition to its foundry, to cost in excess of \$30,000 with equipment. B. H. Payne is general manager.

The Snakatchewan Cooperative Elevator Co., Tift Street and the Hamburg Turnpike, Buffalo, has filed plans for a one-story mechanical shop at the site of its proposed new grain elevator. Plans for the latter structure will be available at an early date. It is reported to cost in excess of \$250,000 with hoisting, conveying and other machinery.

The Meyer Motor Car Co., 1275 Main Street, Buffalo, has taken out a permit for the construction of a second-story addition to its service, repair and garage building, to cost about \$50,000 with equipment.

The Acme Steel & Malleable Iron Works, 245 Military Road, Buffalo, maker of electric steel and malleable castings, has changed its name to the Buffalo Brake Beam Co. It is asking bids for the erection of a one-story addition, 60 x 220 ft., to cost about \$45,000 with equipment.

New England

BOSTON, Nov. 15.

MACHINE tool business in this district the past week was practically at a standstill. Buying interest centered largely in the auction sale of Hamilton & Parker, Somerville, Mass., die makers' equipment. Prices paid for presses and two or three other types of tools were high, while those paid for the general list were about in keeping with quotations made by local used tool dealers on similar equipment. Most of the tools sold were taken by users.

The demand for new tools is practically nil. One local used tool house reports submitting bids on approximately 20 machines wanted by a company contemplating the manufacture of dies in Texas. Bids recently submitted on export inquiries so far have failed to develop into actual business. A New Haven used tool dealer claims to have sold \$10,000 worth of equipment the past week. Demand for small tools is very good for this time of year.

The Johnson Steel & Wire Co. has been organized at Worcester, Mass., to manufacture a general line of wire, with high carbon steel wires as a specialty, and will erect a mill, 60 x 200 ft., two stories. It is a Massachusetts corporation, with capital stock of \$150,000. The officers are: President and general manager, Charles D. Johnson; vice-president and assistant general manager, George E. Peace; treasurer, Bernard A. Johnson; assistant treasurer, George G. Johnson; clerk, Ernest L. Anderson. The three Johnsons are the sons of the late Charles O. Johnson, who founded the Worcester Wire Works and conducted the business, with his sons, until his death in 1919. The sons disposed of their interest in the business last summer. Mr. Peace was formerly manager of a steel mill at Hamilton, Ont.

The L. Erickson Electric Co., 6 Portland Street, Boston, will start work next spring on a manufacturing plant at Terminal Street and Revere Beach Boulevard, Everett, Mass. Plans are private.

Work will start at once on a one-story, 31 x 68 ft., addition by the Eastern Tool Stamping Co., Saugus, Mass. Plans are private.

The K. C. Richmond Co., 10 Weybosset Street, Providence, R. I., architect, has completed plans for a one-story foundry for the Builders Iron Foundry, Kingsley Avenue, that city, of which Z. Chafee is president and treasurer.

The Lynn Foundry Co., 993 Broad Street, Lynn, Mass., is having plans prepared for a one-story foundry to replace a building recently badly damaged by fire. Details will be announced later.

Motors and miscellaneous equipment will be required for a one-story, 24 x 51 ft. addition for the Wolf New Process Co., Hanover Street, Meriden, Conn.

The entire equipment of the United States Cartridge Co., Lowell, Mass., will be moved to the plant of the Winchester Repeating Arms Co., New Haven, Conn., beginning the latter part of November.

The plant and property of the Rowe Calk & Chain Co., Plantsville, Conn., will be sold at public auction by order of the United States district court.

The Market Forge Co., Garvey Street, Everett, Mass., will soon begin work on a two-story forge shop, 67 x 90 ft., to cost about \$35,000 with equipment.

The American Type Founders Co., 370 Congress Street, Boston, has acquired the plant and equipment of the National Machine Co., Wethersfield, Conn., inactive for a number of months. The new owner is reported to be planning to occupy for a branch works later.

The Miller Co., 43 Brookline Avenue, Brookline, Mass., is having plans prepared for a one-story welding works, estimated to cost \$30,000 with equipment. A. J. Haffenstine, 143 Washington Street, is architect.

The Ted Toy-Lens, Inc., 55 South Water Street, New Bedford, Mass., manufacturer of toys, has awarded a general contract to the J. W. Bishop Co., New Bedford, for its new one-story plant at Farmington, Me., consisting of a main unit, 25 x 120 ft., with one-story enameling division, 33 x 40 ft., and one-story power house, 30 x 40 ft., to cost in excess of \$50,000 with equipment. Leary & Walker, First National Bank Building, are architects.

Officials of the Saco-Lowell Shops, Lowell, Mass., manufacturers of textile machinery and parts, are planning the organization of a new subsidiary, to be known as the Elison

The Crane Market

CURRENT inquiry for overhead and locomotive cranes continues light and only a few purchases of equipment are reported. The six overhead cranes for the American Steel & Wire Co., Worcester, Mass., which have been under inquiry for several weeks are expected to close shortly. The Central Railroad of New Jersey is inquiring for a gantry crane and the Long Island and Erie Railroads closed last week on gantry cranes. The Phoenix Utility Co., 71 Broadway, New York, is taking bids on a 5-ton, single I-beam hand power crane and is asking for a 10-ton to 15-ton locomotive crane for a power project in North Carolina, delivery late next spring. The New York Central is reported to have closed on the fifth locomotive crane in its recent list, four of which were placed two weeks ago. The Department of City Transit, Philadelphia, will receive bids until Nov. 23, on several electric traveling cranes for two power stations.

Among recent purchases are:

City of Newark, N. J., a 25-ton locomotive crane reported purchased from the McMyler-Interstate Co.

Erie Railroad, New York, a 25-ton gantry crane for

Rochester, N. Y., reported placed with the Shaw Electric Crane Co.

Long Island Railroad, Brooklyn, N. Y., a 25-ton gantry crane from an unnamed builder.

Missouri Pacific Railroad, a 25-ton locomotive crane from the American Hoist & Derrick Co.

Platt Brothers, Waterbury, Conn., a 2-ton underhung hand power crane from H. D. Conkey & Co.

Dixie Machinery Mfg. Co., St. Louis, a 5-ton hand power crane from H. D. Conkey & Co.

Fisher Body Corporation, Flint, Mich., two 5-ton, motor driven, overhead cranes from H. D. Conkey & Co.

Abell-Howe Co., Chicago, a 3-ton, single I-beam, hand power crane from H. D. Conkey & Co.

Franklin Valveless Engine Co., Franklin, Pa., a 5-ton underhung hand power crane from H. D. Conkey & Co.

Wisconsin Hydro-Electric Co., Amery, Wis., a 15-ton, double beam, hand power crane from H. D. Conkey & Co.

R. C. Weibolt Co., Chicago, a 3-ton, motor driven, overhead crane from H. D. Conkey & Co.

Machine Shop, Inc., to take over and operate the local Kitson plant, as well as the foundry on Walker Street, Lowell. It will be operated as a separate organization.

Philadelphia

PHILADELPHIA, Nov. 15.

THE Philadelphia Rubber Works, Inc., Land Title Building, Philadelphia, has awarded a general contract to F. R. Heavner, Norristown, Pa., for a one-story addition to its mill at Oakes, Pa., 50 x 220 ft., to cost about \$100,000 with equipment.

Thalheimer & Weitz, 10 South Eighteenth Street, Philadelphia, architects, have preliminary plans under way for a two-story and basement automobile service, repair and garage building, 50 x 180 ft., to cost \$100,000 with equipment.

Connery & Co., Inc., Second and Luzerne Streets, Philadelphia, operating a boiler and plate works, has filed plans for a one-story addition.

The Department of City Transit, 1211 Chestnut Street, Philadelphia, H. E. Ehlers, director, will build two electric power substations, instead of one, as previously announced, for which bids will be received until Nov. 22. The plants are reported to cost in excess of \$200,000. Bids will also be received until Nov. 23 for 151 sets of airbrake operating equipment, equipment for extra trucks, and miscellaneous car equipment.

The Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, is arranging for a new stock issue to total \$13,300,000, the fund to be used for financing new construction during the coming year, including power plants, transmission lines and other work. The company has recently increased its authorized capital from \$85,000,000 to \$150,000,000. Walter H. Johnson is president.

Traveling ovens, power equipment, conveying and other machinery will be installed in the proposed six-story and basement addition, 110 x 160 ft., at the plant of the Tasty Baking Co., 2801 Hunting Park Avenue, Philadelphia, to cost \$350,000, for which superstructure will proceed at once. H. C. Morris is president.

The Andale Engineering Co., 1600 Arch Street, Philadelphia, manufacturer of coolers, filters, oil-burners and other power equipment, has awarded a general contract to the H. K. Ferguson Co., for a one-story addition to its plant at Lansdale, Pa., 90 x 102 ft., to cost \$50,000 with machinery.

The Standard Iron & Steel Co., Harrisburg, Pa., has plans for a two-story works, 40 x 100 ft., on South Cameron Street, for which bids are being asked by B. E. Starr, Spooner Building, architect.

P. R. Baker, Coatesville, Pa., and associates, have acquired the plant of the United States Lock & Hardware Co., Columbia, Pa., from the Estate of C. G. Sauer. The new owners will continue the factory for a similar line of manufacture and will increase the working force.

The Board of Trustees, Lehigh University, Bethlehem, Pa., has authorized plans for a new three-story and basement mechanical and electrical engineering building, 184 x 225 ft., to include laboratories, shops for heavy and light machinery, electrical testing departments, power division,

etc., estimated to cost \$1,000,000 with equipment. Viascher & Burley, 51 East Forty-second Street, New York, are architects.

The Board of Education, Marcus Hook, Pa., is said to have authorized the installation of a manual training department in its proposed two-story and basement junior and senior high school to cost \$200,000, for which plans will be drawn by the Ballinger Co., Philadelphia, architect.

The Stevenson Cold Storage Co., Chester, Pa., has plans for an addition to its cold storage and refrigerating plant, reported to cost in excess of \$50,000 with equipment. The Ballinger Co., Philadelphia, is architect and engineer.

Huff, Daland & Co., Bristol, Pa., manufacturers of airplanes and parts, have authorized a new preferred stock issue of 4000 shares, and like amount of common stock, making a total capitalization of more than \$1,000,000, a portion of the fund to be used for expansion. Edward N. Gott, formerly vice-president of the Fokker Aircraft Co., New Jersey, has been elected president of Huff, Daland & Co., to succeed Thomas H. Huff.

The Metropolitan Edison Co., Reading, Pa., has concluded negotiations for the purchase of the Blue Mountain Electric Co., operating at Bethel, Fredericksburg, Strausstown, and vicinity, and plans extensions and improvements in this section, including transmission line construction.

The Sturdevant Mfg. Co., Stroudsburg, Pa., has been incorporated with a capital stock of \$50,000 to take over and operate the plant and holdings of the Sturdevant Mfg. Co. It manufactures white toilet seats with a non-celluloid finish.

Cleveland

CLEVELAND, Nov. 15.

ALTHOUGH inquiries are fairly good, machine tool sales are not holding up to those of last month. A local turret lathe manufacturer during the week sold three large machines to an oil supply company in Texas and three machines for export to France. The New York Central Railroad has bought a No. 3 axle lathe for its shops at Airline Junction, Toledo, Ohio. Some attractive business in production machinery is coming from the automotive industry in Detroit. A steel company in the Cleveland territory is inquiring for five machines; an Akron rubber manufacturer is in the market for a 12-in. vertical shaper.

The National Carbon Co., Madison and West 117th Streets, Cleveland, has placed contract with the A. A. Lane Construction Co., local, for a two-story factory addition 70 x 250 ft.

The National Air Transport Co., subsidiary of the American Railway Express Co., New York, is contemplating the erection of an airplane hangar at the Brook Park Airport, Cleveland.

The city of Cleveland is having plans prepared for a garbage disposal plant.

The Wellman Bronze Co., Cleveland, has purchased the business of the Cleveland Flush Meter Co., maker of flush

valves, and will move the manufacture of this product to its own plant at 6017 Superior Avenue.

The Barnes Mfg. Co., Mansfield, Ohio, manufacturer of pumps, has had plans prepared for a 52 x 185-ft. foundry. The George S. Rider Co., Cleveland, is the architect.

The Couch-Uthe Co., Elyria, manufacturer of screw machine products, is erecting a new plant, 36 x 80 ft. which it will occupy about Jan. 1.

South Atlantic States

BALTIMORE, Nov. 15.

A POWER house and machine shop will be constructed at the proposed new factory of Crosse & Blackwell, Ltd., 146 West Twenty-second street, New York, at Canton, Baltimore, where a tract of 5 acres has been secured. The initial plant will cost about \$500,000, and ultimate works, about \$1,000,000. Clark, MacMullen & Riley, 101 Park Avenue, New York, are architects and engineers.

The Bartlett Hayward Co., 200 Scott Street, Baltimore, manufacturer of steel plate products, etc., has awarded a general contract to Morrow Brothers, Fidelity Building, for rebuilding its one-story forge shop, 44 x 70 ft., recently destroyed by fire, estimated to cost \$35,000.

The Taylor Iron Works & Supply Co., 1014 Broadway, Macon, Ga., is said to have preliminary plans under way for a steel fabricating works on site recently acquired, to cost close to \$50,000 with equipment.

The United States Engineer, Navy Department Building, Washington, is asking bids until Dec. 11 for furnishing, installing and testing two motor-driven pumping units for the District of Columbia water supply project.

The Common Council, Westhampton, Va., near Richmond, is considering the installation of pumping equipment in connection with a proposed municipal waterworks and sewage system, for which a fund of \$400,000 is being arranged.

The Lingo Metal Works, Wilmington, N. C., has been making inquiries for a quantity of sprockets and conveyor chains.

The Anderson Motor Co., 4736 Edmondson Avenue, Baltimore, has acquired adjoining property, 55 x 129 ft., and plans the early construction of a new one-story service, repair and garage building, to cost in excess of \$70,000 with equipment. The company has also purchased property, 160 x 200 ft., at Edmondson Avenue and Little Cooke Lane, and contemplates a similar works to occupy the entire site.

F. M. Laxton, 900 Realty Building, Charlotte, N. C., and associates have secured a preliminary permit for the construction of a hydroelectric generating plant on Wilson Creek, vicinity of Lenoir, N. C., to cost in excess of \$250,000 with power dam and transmission system. A. A. Shuford, address noted, is also interested in the project.

The Yadkin River Power Co., Raleigh, N. C., has concluded arrangements for the purchase of the Sumter Power & Ice Co., Sumter, S. C., and plans extensions, including additional equipment.

The Common Council, Clarksville, Va., is asking bids until Dec. 9 for equipment for a proposed municipal waterworks and sewage system, including a motor-driven deep-well pump, steel tank and tower, and accessory apparatus. The J. B. McCrary Engineering Corporation, Atlanta, Ga., is engineer.

The chief of engineers, Washington, United States Army, is asking bids until Dec. 9 for a Diesel engine-generating set, with switchboard and accessories.

The Hackley-Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a marine type crude oil engine, about 100 hp., complete with starting equipment; also for a standard gage, 6-wheel switching locomotive, 40 to 50 tons capacity, and a 10-hp. boiler, with accessories.

The Common Council, Front Royal, Va., is considering the installation of pumping machinery in connection with a proposed new municipal waterworks, for which bonds for \$100,000 have been approved.

The Virginia Electric & Power Co., Richmond, Va., is arranging for a bond issue of \$9,000,000, a portion of the proceeds to be used for extensions and improvements in generating plants and system, including the proposed acquisition of additional properties.

J. M. Morse, Cogdell, Ga., is planning for the early purchase of a quantity of equipment for a woodworking plant and sawmill, including tools, transmission apparatus, etc.

The Newberry School District, Newberry, S. C., plans the installation of manual training equipment in its proposed new high school estimated to cost \$210,000, for which super-

structure will be placed under way at once. A. Ten Eyck Brown, Forsyth Building, Atlanta, Ga., is architect.

The National Fuel Corporation, Roanoke, Va., recently formed by Frank W. Rogers and Whitwell Cox, both of Roanoke, with capital of \$100,000, is reported to be planning the early operation of coal properties in this section, and will install power equipment and mining machinery.

R. P. Johnson, Wytheville, Va., machinery dealer, has been making inquiries for a saddleback tank locomotive, 44-in. gage, about 10 tons capacity; also for a hoisting engine, about 10-hp. capacity, with boiler and accessories.

The Luray Ice Co., Luray, Va., is planning the early purchase of an electrically-operated pumping unit, with capacity of about 350 gal. per min.

St. Louis

ST. LOUIS, Nov. 15.

BIDS will be asked in about 30 days by the Board of Public Service, City Hall, St. Louis, for a three-story mechanical and electrical service and repair building, 276 x 281 ft., to cost close to \$1,000,000 with equipment. Study & Farrar, Arcade Building, are architects.

The Hinde & Dauch Paper Co., Sandusky, Ohio, has concluded arrangements for the purchase of the plants and businesses of the Kansas City Fibre Box Co., and the Kansas City Packing Box Co., both of Kansas City, Mo., and will operate in the future under the first-named name. Plans are under consideration for the erection of a new local fiber board mill, for raw material supply for the affiliated companies, to cost in excess of \$1,000,000 with machinery. James F. Cleary is vice-president and general manager.

The New State Ice Co., 28 West Third Street, Oklahoma City, Okla., has plans for a new one-story ice-manufacturing plant, converting a former steam power house for this purpose. Considerable equipment will be installed. It will cost approximately \$50,000.

The Austin Western Road Machinery Co., 2136 Washington Street, Kansas City, Mo., has awarded a general contract to the Wood Brothers Construction Co., Security Building, for a one and two-story plant, 90 x 125 ft., to cost about \$55,000. Hans Von Unwerth, Finance Building, is consulting engineer.

The Arkansas Aircraft Co., Alpine Court, Little Rock, Ark., J. Carroll Cone, president, has plans for the establishment of a new plant for the manufacture of airplanes and parts, to cost about \$35,000 with equipment.

The City Council, Berryville, Ark., plans the installation of pumping equipment in connection with proposed extensions and improvements in the water and sewage systems, estimated to cost \$50,000. E. M. Ratiff, Fayetteville, Ark., is engineer.

The Arkansas Light & Power Co., Pine Bluff, Ark., has plans under way for extensions and betterments in its plant and system in the vicinity of Russellville, Ark., estimated to cost \$200,000. H. C. Couch is president.

The Alliance Rubber Producing Co., 522 Scarrett Building, Kansas City, Mo., recently formed by E. R. Bailey and associates, has acquired property at Twenty-third Street and Lister Avenue, and will remodel for the manufacture of mineral rubber. The initial plant is reported to cost about \$45,000. Later the company purposes to establish a mill for the production of rubber goods.

The Board of Education, Joplin, Mo., is said to be considering the installation of manual training equipment in its proposed two-story and basement South Junior high school, to cost \$200,000, for which superstructure will soon begin. J. H. Felt & Co., Balcony Building, Kansas City, Mo., are architects.

The City Ice Co., Twenty-first and Campbell Streets, Kansas City, Mo., has plans under way for a new one-story plant at Waldo, Mo., estimated to cost close to \$50,000 with machinery.

The Federal Mining & Smelting Co., 20 Broadway, New York, with main plant at Wallace, Idaho, is reported planning the establishment of a new lead works in the vicinity of Spring City, Mo., to cost more than \$75,000 with equipment.

The Empire District Electric Co., Joplin, Mo., is considering extensions and improvements in its Riverside generating station to cost in excess of \$1,000,000. Additions will also be made in the transmission system.

The Board of Public Service of St. Louis is undecided whether to accept the low bid of the Worthington Pump & Machinery Co., \$166,900, to install three low-pressure pumps, and \$235,700 for two high-pressure assemblies, or the second

low bid of the DeLaval Steam Turbine Co. of Trenton, N. J., \$208,000 and \$272,950, respectively, and has taken the awards under advisement. The high pressure pumps are to have a daily capacity of from 40,000,000 to 60,000,000 gal. Two of the low-pressure pumps are to have the same capacity and the third's capacity is to be from 60,000,000 to 120,000,000 gal. They are to be driven by steam turbines, which are included in the bids. The pumps are part of the equipment of the new \$12,000,000 St. Louis waterworks plant on the Missouri River.

The St. Louis Motor Valve Co., Inc., 4527-29 Olive Street, St. Louis, has been organized to manufacture motor operated valve mechanisms, applicable to valves used in brine, ammonia, high-pressure water and steam pipe lines. It will also manufacture electrical control specialties and is at present in the market for small gears and screw machine parts. Some manufacturing will be done by contract and the rest in the company's shop at the above address.

The Medart Co., Potomac and De Kalb Streets, St. Louis, is erecting a foundry at a cost of \$100,000 and not \$50,000 as previously stated. Walter R. Medart is president and treasurer.

The Empire Chandelier Mfg. Co., P. O. Box 1894, Tulsa, Okla., has been incorporated to manufacture electric light fixtures, brass and bronze tablets, ornamental brass and iron work and to do electroplating. The company has just completed a factory at Sand Springs, Okla. Its officers are W. J. Smiley, president; H. L. Steenson, vice-president and treasurer, and C. B. Johnston, secretary.

Pittsburgh

PITTSBURGH, Nov. 15.

LITTLE activity is noted in machine tools, the general report being that sales during the first half of the month have been less in volume and value than those of the same period in October. With the end of the year so close the tendency is strong to put off until 1927 purchases of machines that are not urgently needed. The Westinghouse Electric & Mfg. Co. is still to place a good many of the items asked for in its quarterly list.

Plans have been filed by the Pennsylvania Lubricating Co., Thirty-fourth and Smallman Streets, Pittsburgh, for an addition to cost about \$20,000 with equipment.

John Murphy & Co., 51 Chatham Street, Pittsburgh, have awarded a general contract to the Austin Co. for a proposed two-story automobile assembling, repair and sales building, 78 x 130 ft., to cost \$100,000 with equipment. W. B. Kerr is in charge.

The American Oil Works, Titusville, Pa., has work in progress on an expansion program at its local refinery to cost about \$150,000, including the installation of machinery. An added fund of about \$50,000 is now being arranged for additional work and equipment. A. B. Weingard is general manager.

The Appalachian Electric Power Co., Bluefield, W. Va., is reported to be considering plans for a new hydroelectric generating station on the Roanoke River, vicinity of Danville, Va., to cost in excess of \$200,000 with transmission lines. The company is negotiating for the purchase of the municipal light and power plant at Danville.

The Standard Sanitary Mfg. Co., Bessemer Building, Pittsburgh, is revising plans for a two-story factory branch and distributing plant, 195 x 210 ft., at Altoona, Pa., to cost about \$165,000 with equipment.

The Conewango Refining Co., Warren, Pa., is arranging for a bond issue of \$500,000, a portion of the proceeds to be used for extensions and improvements in its local oil refinery, including the installation of additional equipment.

The Mountain States Utilities Corporation of West Virginia, Inc., operated by the Allied Utilities Corporation, Mills Building, Washington, has concluded arrangements for the purchase of the Salem Electric Co., Salem, W. Va., and other smaller properties in this section. Plans are under way for extensions and the installation of additional equipment.

New buildings to be erected by the National Radiator Co., Johnstown, Pa., at its New Castle plant include a radiator foundry, 180 x 864 ft., with coke shed, 24 x 130 ft.; main foundry, 180 x 356 ft.; assembly and shipping room, 190 x 432 ft.; charging floors, 50 x 100 ft. and 50 x 60 ft.; boiler house, 60 x 60 ft. and an extension, 136 x 300 ft. to an existing building. The H. K. Ferguson Co., Cleveland, engineer and builder, has the general contract.

Milwaukee

MILWAUKEE, Nov. 15.

ENCOURAGEMENT is given the machine-tool industry by a steady run of orders, although none is of conspicuous size. Local builders are operating at a rate comparable with the high point of the year, and expect to be able to maintain this rate after the first of the year. The seasonal slackening of demand from the automotive industries appears to be well offset by needs from other industries. Meanwhile, inquiry from automobile shops concerning prospective needs continues active.

The Chevrolet Motor Co., Detroit, has let the general contract for a one-story addition, 160 x 280 ft., to the service supply building of its branch works at Janesville, Wis., to W. W. Oefflein, Inc., 86 Michigan Street, Milwaukee. The Oefflein company is completing additions to the main Chevrolet plant and the Fisher Body works at Janesville. The improvements will cost about \$750,000 in the aggregate.

The Eagle River, Wis., water and light commission closes bids Nov. 22 for a water supply of 432,000 gal. per day. The work consists of drilling an artesian well, building a pump house, installing motor-driven pumping equipment, a steel tank on a steel tower and other needs. Plans are by W. F. Reichardt, consulting engineer, Watertown, Wis. W. Gauder, Jr., is city clerk.

The Empire Level Mfg. Co., 313 First Avenue, Milwaukee, is starting work on a two-story addition, 30 x 60 ft., costing about \$20,000 with equipment.

George W. Browne, Inc., 144 Broadway, Milwaukee, distributor of Chrysler automobiles, has plans by Paul Marzillier, architect, 144 Oneida Street, local, for a new sales and service building costing about \$125,000. Excavation contracts were let Nov. 8. It will be 120 ft. square, three stories and basement, and the machine shop will contain about 8000 sq. ft. George W. Browne is president and general manager.

The Sortograph Co., Elkhart Lake, Wis., manufacturer of coin sorting machines and similar specialties, will invest about \$35,000 in a plant extension, 60 ft. square, two stories and basement.

The Joseph F. Rothe Foundry Co., Green Bay, Wis., has completed a new pattern shop and fireproof pattern storage, 30 x 120 ft., and is now installing new equipment.

Chicago

CHICAGO, Nov. 15.

MACHINE tool sales so far in November have been in good volume and average better than for October. The bulk of this business is being placed against old inquiries. Fresh requests for prices are less numerous and dealers are somewhat concerned over the outlook for the remainder of the year. Prices are reasonably firm and there is talk of a general advance. The Pullman Co.'s list may come up for action next week. Manufacturers of radio parts and sets are not so busy as last fall, but makers of electrical goods and household commodities are keeping up operations and are in the market for machine tools. Sales of punch presses have increased.

An automobile parts maker at Indianapolis, Ind., has bought an 18-in. x 8-ft. lathe. The A. O. Smith Corporation, Milwaukee, is inquiring for replacement tools and the International Harvester Co. at Milwaukee, is working on a program for the production of cream separators. Armour & Co., Chicago, will take bids on a 60-in. x 18 to 20-ft. lathe and a 54-in. boring mill, both to be equipped with alternating current motors. The Chicago Board of Education is asking for prices on a 20-in. band saw, Baker-Syracuse or equal, a 6-in. jointer, four 12-in. x 55-in. motor-in-head lathes, and a two-wheel grinder with 8-in. x 1-in. wheels.

The Kahler Corporation and the Mayo Clinic, Associated, will erect a power plant to cost \$350,000 with equipment. Bellerbe & Co., Endicott Building, St. Paul, Minn., are architects.

The Farles Mfg. Co., Decatur, Ill., will build a 40 x 80-ft. addition to its brass foundry.

Bids are being asked by the City Council, Waukegan, Ill., until Dec. 9, for a new pumping station and filtration plant for the municipal waterworks. The entire project will cost close to \$900,000. Henry A. Allen, 208 North Wells Street, Chicago, is engineer. Hoad, Decker, Shoecraft &

Drury, 303 South State Street, Ann Arbor, Mich., are consulting engineers.

The J. S. Heath Co., Market Street, Waukegan, Ill., manufacturer of brass and bronze specialties, will soon begin superstructure for a new one-story plant, 100 x 250 ft., estimated to cost \$50,000 with equipment. R. O. Allexan is general manager.

The Board of Education, Hoopeston, Ill., contemplates the installation of manual training equipment in a proposed three-story high school to cost \$125,000, for which bids will soon be asked on a general contract. Royer, Danely & Smith, Flat Iron Building, Urbana, Ill., are architects.

The Minneapolis Heat Regulator Co., 2747-51 Fourth Avenue, South, Minneapolis, Minn., manufacturer of heating control equipment, will soon proceed with the superstructure for a new five-story and basement plant, 60 x 165 ft., to cost \$200,000.

The Electric Machinery Mfg. Co., 1331 Taylor Street, N. E., Minneapolis, Minn., will soon begin superstructure for a two-story and basement, L-shaped addition, 40 x 110 ft., and 26 x 50 ft., to cost about \$25,000. Downs & Eads, Phoenix Building, are architects.

The Western Clock Co., Fourth Street, La Salle, Ill., is considering the construction of a two-story addition, to cost in excess of \$75,000 with equipment. It is understood that work will begin next spring. H. E. Hackman is secretary. A. S. Goodenough is company engineer.

The Sloan Valve Co., 4300 West Lake Street, Chicago, manufacturer of valves and plumbing specialties, will soon proceed with the erection of a three-story addition to its plant, 100 x 135 ft., estimated to cost close to \$90,000, with equipment.

The Ender Weatherstrip Co., 709 East Lake Street, Minneapolis, Minn., has been incorporated with an authorized capital stock of \$100,000 to manufacture the Ender weatherstrip. The company will be in the market for material in the near future.

Cincinnati

CINCINNATI, Nov. 15.

AFURTHER recession in sales is reported by local machine tool builders, and the volume of business booked in the first half of November shows a substantial decrease compared with that in the same period in October. The large number of inquiries, however, is indicative of the continued interest shown by buyers. Many manufacturers believe that a considerable proportion of the inquiries will be turned into orders before the end of the month. Automobile companies in the Detroit district are negotiating for equipment, but in view of their recent curtailment of operations, the closing in the near future of much of that business is somewhat doubtful. Aside from the list issued by the Norfolk & Western several weeks ago, machine tool builders have little railroad inquiry on which they are working.

Production of machine tools continues at a satisfactory rate, and shipments in November should reach a fairly high mark. However, unless fresh bookings increase soon some of the smaller plants will be compelled to cut down present operating schedules. There are a few important builders which have sufficient orders on hand to insure steady production throughout the remainder of the year. Despite the perceptible decline in orders, manufacturers have only a small quantity of machine tools in stock.

Outstanding among sales the past week was that of a number of shapers, radial drills and lathes to a company allied with the automotive industry. In addition, the Hudson Motor Co. is reported to have placed a sizable order for turret lathes with a builder outside of this market.

Fred Marshall, Beckel Building, Dayton, Ohio, is at the head of a project to organize a company to construct a local plant for the manufacture of airplanes and parts. The initial unit will be about 130 x 200 ft.

The United States Engineer, Cincinnati, is asking bids until Nov. 24 for a compound engine, 16-in. dredging pump, vertical inverted cylinder and accessory equipment.

The Teachout Sash, Door & Glass Co., Columbus, Ohio, is considering rebuilding the portion of its plant destroyed by fire Nov. 6, with loss reported at close to \$300,000 including equipment.

The Southern Paint & Pigment Co., Doyle, Tenn., recently organized with a capital of \$50,000 by J. M. Gamble, president, First National Bank, Doyle, and associates, is said to have preliminary plans under way for new works for the

manufacture of paint pigments, including lime-crushing plant, to cost close to \$200,000 with machinery.

The United States Engineer, Louisville, is asking bids until Nov. 30 for the construction of power houses at Dams 47 and 51, Ohio River.

The National Cash Register Co., Dayton, Ohio, has acquired property, 80 x 140 ft., at Brown and L Streets, and is said to be planning an addition to occupy the entire site.

The Wagner Auto Garage Co., Massillon, Ohio, has plans nearing completion for a new one-story and basement service, repair and garage building, 125 x 220 ft., to cost \$90,000 with equipment. Albrecht & Wilhelm, Albright Building, are architects. Lloyd W. Wagner is head.

Henry L. Doherty & Co., 60 Wall Street, New York, operating the Cities Service Co. and other electric utilities, have concluded negotiations for the purchase of the plant and property of the Bluff City Electric Co., Bluff City, Tenn. Plans are being considered for extensions and improvements.

The International Tool Co., 138 Madison Street, Dayton, Ohio, will soon ask bids for the erection of the first unit of its proposed new plant to cost about \$150,000 with equipment.

The Kingsport Brick Corporation, Kingsport, Tenn., has plans under way for rebuilding of a portion of its plant for complete modernization. The entire project will cost in excess of \$50,000.

The G. A. Schacht Motor Truck Co., Eighth and Evans Streets, Cincinnati, manufacturer of motor trucks, has filed plans for a one-story addition.

The Case Crane & Engineering Co., St. Clair Street and Curtis Avenue, Columbus, Ohio, manufacturer of cranes and hoists, has changed its name to the Case Crane & Kilbourne Jacobs Co.

Detroit

DETROIT, Nov. 15.

THE Norton Co., Worcester, Mass., manufacturer of grinding wheels and other abrasive products, is completing plans for a two-story factory branch and distributing plant at Detroit, to cost \$200,000 with equipment. Frost, Chamberlain & Edwards, 390 Main Street, Worcester, are architects.

The Hancock Mfg. Co., Charlotte, Mich., manufacturer of automobile hardware, has acquired the former plant of the Earl Motors Co., Jackson, Mich., for expansion. It is planned to open up a portion of the purchased property at an early date, giving employment to about 100 men. It is understood that equipment will be removed from the Charlotte works. H. W. Hancock is president.

The Panyard Machine & Mfg. Co., 296 Western Avenue, Muskegon, Mich., manufacturer of piston rings, etc., will take bids at once for a new plant, consisting of a one-story structure, 120 x 165 ft., and two-story building, 35 x 130 ft., to cost in excess of \$60,000 with equipment. Vanderwest & Child, Montgomery Building, are architects.

The Piston Service Co., 1228 Michigan Avenue, Detroit, is completing plans for a new two-story building, 50 x 130 ft., estimated to cost \$50,000 with equipment. Halpin & Jewell, Hammond Building, are architects.

The Board of Education, Lansing, Mich., plans the installation of manual training equipment in a proposed new two-story and basement school to cost close to \$1,000,000, for which bids will be asked soon on a general contract. J. N. Churchill, Lansing, is architect.

Following the recent sale of its plant to the Michigan Central Railroad Co., the Peninsular Stove Co., Detroit, has acquired 18 acres on the Burt Road, fronting on the line of the Pere Marquette Railroad, and will soon have plans drawn for the initial units of a new plant, to cost close to \$2,000,000 with machinery. Alfred E. Moran is secretary.

Rudd & Stronach, Rochester, Mich., operating at the former plant of the Barnes Paper Co., will make extensions and betterments, including the installation of additional machinery. The entire project will cost approximately \$75,000.

The Packard Motor Car Co., Detroit, has plans for a new one-story unit to its aircraft motor division, to cost close to \$50,000 with equipment.

The Tannewitz Works, Inc., 215 Front Street, N. W., Grand Rapids, Mich., manufacturer of saw benches and kindred mechanical equipment, has awarded a general contract to George J. Vander Muelen, 1847 Lafayette Street, S. E., for its one-story addition, 50 x 190 ft., to cost \$30,000 with equipment. Pierre Lindhout, Michigan Trust Building, is architect. Edward Tannewitz is head.

The Board of Education, L'Anse, Mich., plans the installation of manual training equipment in its proposed two-story and basement high school estimated to cost \$100,000, for which bids are being asked on a general contract until

Jan. 3. F. E. and G. F. Parmelee, Commercial Bank Building, Iron Mountain, Mich., are architects.

The Wolverine Co., 2013 Franklin Street, Detroit, has been incorporated with \$30,000 capital stock. The company manufactures tools, jigs, fixtures, machine parts, machine products and acts as consultant and engineer in designing and engineering work. It also manufactures special body tools and woodworking tools and quick-acting eccentric clamps for automobile body-building work. Officers of the company are: Otto Grenske, president and treasurer; Englebert Weg, vice-president; Theodore Gabert, secretary.

The Michigan Wire Fence Co., Adrian, Mich., has discontinued the manufacture of woven wire fence and is offering its fence looms and plant for sale. E. E. Tobias is manager.

The Dual Co., Niles, Mich., has been organized to manufacture a patent metal step-stool. It is not at present in the market for equipment, but is in position to purchase materials, fender stock and tubing.

The Universal Sales Corporation, 21241 Cardoni Street, dealer in drilling and reaming bushings, has changed its name and address to the Universal Standard Co., Murphy Building, Highland Park, Mich.

Gulf States

BIRMINGHAM, Nov. 15.

A BOND issue of \$400,000 is being sold by the Texas Power Corporation, New Braunfels, Tex., recently organized, a considerable portion of the proceeds to be used in connection with the construction of three hydroelectric generating plants on the Guadalupe River, between New Braunfels and Seguin. The Fargo Engineering Co., Jackson, Mich., is engineer. F. H. Willmont is president.

The Wright Roofing Tile & Metal Co., Jackson, Miss., recently organized by Ray Wright, 226 South State Street, and associates, is having plans prepared for three one-story units, 50 x 130 ft., 50 x 90 ft., and 50 x 80 ft., respectively, for the manufacture of concrete roofing tile, as well as sheet metal building specialties. The initial plant will cost close to \$30,000.

The Super Tools Co., 2033 Park Avenue, Detroit, is reported to be planning the construction of a new plant at Sheffield, Ala., for the manufacture of patented wrenches and kindred tools, to cost about \$25,000.

The Central Light & Power Co., Robstown, Tex., will proceed with the construction of a new one-story ice-manufacturing plant on local site, with capacity of 34 tons per day, estimated to cost approximately \$30,000, with equipment. Headquarters are at 72 West Adams Street, Chicago.

David Stewart, Natchez, Miss., and associates, have plans under way for a new electric light and power house at Jackson, La., where franchise has been secured. A waterworks will also be built. A company will be formed to carry out the project, which is estimated to cost \$110,000.

The United States Engineer, Jacksonville, Fla., is asking bids until Dec. 6 for a dredging pump.

The Duval Texas Sulphur Co., Second National Bank Building, Houston, Tex., will proceed with the installation of power equipment for the mining of sulphur at its properties in Duval County. It is also arranging for a new plant to manufacture sulphuric acid. It is reported to cost in excess of \$65,000. J. W. Cain is president.

The Sorg Engine Co., Owosso, Mich., is said to be planning the establishment of a plant at Sheffield, Ala., for the manufacture of a new type of internal combustion engine. The initial works will cost close to \$40,000 with equipment.

The Board of Education, Eastland, Tex., contemplates the installation of manual training equipment in a new three-story high school estimated to cost \$125,000, for which bids on a general contract are being asked. The David S. Castle Co., Alexander Building, Abilene, Tex., is architect.

The City Commission, Jacksonville, Fla., Frank H. Owen, chairman, has engaged the Scofield Engineering Co., Commercial Trust Building, Philadelphia, engineer, to prepare plans for its proposed municipal electric light and power house, for which a bond issue of \$2,000,000 recently was approved. It is purposed to ask bids soon.

The City Council, El Dorado, Tex., will install a pumping plant in connection with a proposed municipal waterworks, estimated to cost about \$60,000, for which bids will be asked early in January. The Terrell Bartlett Engineers, Calcasieu Building, San Antonio, Tex., are engineers.

The Standard Brass & Mfg. Co., Port Arthur, Tex., has preliminary plans for a one-story addition, to cost about \$25,000 with equipment.

The Glenny Buick Co., Inc., 822 Howard Avenue, New Orleans, representative for the Buick automobile, is arranging for the erection of a one-story service, repair and garage building, 82 x 200 ft., to cost \$100,000 with equip-

ment. Samuel Stone, Jr., Masonic Temple Building, is architect.

The Grove-Dowling Hardwood Co., Gunntown, Fla., will soon begin the construction of a new mill, with equipment for capacity of about 150,000 ft. per day. It will cost close to \$400,000 with machinery.

The Midget Lantern Works, 209 Huron Street, Jackson, Miss., is planning the erection of a one-story addition, estimated to cost about \$22,000. An electric spot welder, lathe, stamping machine and kindred equipment will be installed.

The Alabama Portland Cement Co., Birmingham, a part of International System, has plans for an expenditure of approximately \$500,000 for further development at its plant. Among work contemplated will be a change from the dry to the wet-process of manufacture. No increase is planned in production.

Indiana

INDIANAPOLIS, Nov. 15.

THE Studebaker Corporation, South Bend, Ind., has awarded a general contract to the H. G. Christman Co., 302 South Notre Dame Avenue, for a one-story addition, 500 x 1000 ft., to cost about \$350,000.

The McQuay-Norris Mfg. Co., Cooper Street and Southwest Avenue, St. Louis, manufacturer of piston rings, etc., will soon begin superstructure for a new one-story branch plant at Connersville, Ind., 50 x 95 ft., to cost about \$25,000 with equipment.

The Edmunds Electric Co., Fort Wayne, Ind., manufacturer of electrical equipment, has plans for a new two-story factory, 40 x 120 ft., to cost about \$35,000 with equipment.

The Northern Indiana Public Service Co., Gary, Ind., has arranged for a bond issue of \$11,500,000, a portion of the fund to be used for extensions and improvements in power plants and system. Main offices of the company are at 72 West Adams Street, Chicago; Samuel Insull is chairman of the board.

The Ames Shovel & Tool Co., Anderson, Ind., has awarded a general contract to Benjamin Wright, West Eighth Street, for the first unit of its proposed additions, to be one-story, 60 x 210 ft., estimated to cost \$35,000. E. F. Miller, Farmers' Trust Building, is architect.

The Woodward Pattern Works, 321 North Michigan Street, South Bend, Ind., has asked bids on general contract for a new one-story plant, 40 x 100 ft., to cost about \$25,000. Myrie E. Smith, 323 South Main Street, is architect.

The former steel works of the Steelton Co., Lafayette Road, near Terre Haute, Ind., on a 65-acre tract, has been sold at a public auction to a syndicate headed by Michael Levy, care of the Citizens' Trust Co., Terre Haute, receivers for the Steelton Co. The new owners are reported to be planning to operate the plant in the near future.

The City Council, Peru, Ind., will soon begin the construction of a one-story addition to the municipal electric light and power plant, 30 x 50 ft. Additional equipment will be installed. Ben Freeland is superintendent.

The Cambell Wire Specialty Works, South Bend, Ind., maker of wire shapes and operator of automatic wire works, has changed its name and address to the Jeschke Wire Specialty Works, Crawfordsville, Ind.

The Economy Governor Co., Anderson, Ind., manufacturer of gas regulators, is contemplating the construction of an addition to double its present manufacturing capacity.

Pacific Coast

SAN FRANCISCO, Nov. 10.

THE Shell Co. of California, Inc., 200 Bush Street, San Francisco, is considering plans for a new oil refinery at Los Angeles, to cost close to \$5,000,000 with machinery. The units will include a gasoline refinery, distilling plant, petroleum refinery, by-products plant and power house.

The Standard Boiler & Steel Works, 226 Queirolo Street, Vernon, Los Angeles, is contemplating the erection of a new one-story plant to cost close to \$25,000 with equipment.

The Longview Fibre Co., Longview, Wash., will begin work this month on its proposed new mill for the production of fiber board products, to cost in excess of \$2,000,000 with machinery.

The City Council, Yakima, Wash., is planning the installation of pumping equipment in connection with proposed extensions and improvements in the municipal waterworks. C. F. Wilson is city engineer.

The Pan-American Petroleum Co., Tenth and Flower Streets, Los Angeles, will make extensions and improvements in its storage and distributing plant at 1851-55 East Washington Street, to cost \$45,000 with equipment.

The Bay Cities Enameling Works, 1332 Mission Street, San Francisco, is planning the early rebuilding of the portion of its plant recently destroyed by fire, with loss reported in excess of \$50,000 including equipment. The Office Fixture Co., with plant on adjoining site, also proposes to rebuild the section of its works which was destroyed by the same fire, loss reported at \$35,000 including equipment.

The Olympia Pulp & Paper Co., Olympia, Wash., care of Lester W. David, 906 North Seventh Street, Seattle, Wash., manager, is completing plans for the construction of the first unit of its mill at Boston Harbor, to be used primarily for pulp production, to cost in excess of \$500,000 including machinery.

The Phelps-Dodge Corporation, 99 John Street, New York, N. Y., has plans under way for a new lead smelting and refining plant at Douglas, Ariz. It also contemplates a new concentrating plant near Bisbee, Ariz. The entire project is reported to cost more than \$300,000. A. G. McGregor is engineer.

The Roosevelt Irrigation District, Phoenix, Ariz., plans the installation of electric pumping machinery, power equipment and transmission lines in connection with a new irrigation project to cost \$2,500,000, in which amount bonds have been voted. The C. H. Loveland Co., Balboa Building, San Francisco, is consulting engineer. M. L. Davenport, Ellis Building, Phoenix, is secretary.

The Michel & Pfeffer Iron Works, San Francisco, is building a one-story and mezzanine floor warehouse covering 5500 sq. ft. of floor space, adjacent to its plant at 1415 Harrison Street. It is expected to be completed early in December.

The American Can Co. will expend about \$1,500,000 for expansion at Los Angeles and will erect a plant, 180 x 600 ft., for which considerable equipment will be required. A box factory will also be built.

The Ramapo-Ajax Corporation, manufacturer of railroad supplies, Hilburn, N. Y., has plans for the establishment of a Pacific Coast branch at Los Angeles adjacent to the plant of the American Manganese Co. The first unit will cost about \$250,000 with equipment. The main foundry will be 110 x 140 ft. Walter Jannicki, resident engineer of the company will have direct supervision of construction.

Canada

TORONTO, NOV. 15.

DEMAND for machine tools is holding well up to former levels, with several good prospects in sight which are expected to involve some fair sized lists before the end of the year. Sales have been chiefly confined to single tools on replacement account, but of diversified lines. Inquiries are also increasing. The Victorian Government Railways, Melbourne, Australia, are asking Canadian builders to quote on tools, for which copies of tender forms and specifications have been received from D. H. Ross, Canadian Trade Commissioner at Melbourne. The list includes one wheel lathe with electric motors and control apparatus, on which bids close Dec. 22 and two electric rivet heaters, on which bids close Dec. 29.

The Linde-Canadian Refrigeration Co., Lachine, Que., has started excavation work in connection with a plant addition for the manufacture of the new domestic unit. It will also build a foundry in this connection.

The Canadian General Electric Co. has started work on the erection of an addition to its plant at Peterborough, Ont., 43 x 106 ft. W. & W. R. Blackwell are architects.

The Richards Wilcox Canadian Co., London, Ont., manufacturer of builders' hardware, fire doors, merchandise carriers, etc., will build an addition to its plant on Chelsea Green.

The East London Fibre Board Co., London, Ont., is calling for tenders for the erection of a \$35,000 factory addition.

The International Fibreboard Co., Midland, Ont., whose factory was partly destroyed by fire with considerable loss to machinery and building, will rebuild immediately and will require some new equipment.

The Hygrade Corrugated Products, Ltd., 699 Bathurst Street, London, Ont., will build factory to cost \$85,000. S. Foxworthy, 616 Waterloo Street, has the general contract.

Western Canada

The Sidney Roofing & Paper Co., Victoria, B. C., has started work on addition to its plant to cost \$100,000.

The Consolidated Mining & Smelting Co., has completed plans for the erection of an antimony smelting plant at

Trail, B. C., and construction work will start at an early date.

The Hammond Cedar Co., Port Hammond, B. C., will spend \$50,000 on an addition and improvement to its mills, including the construction of a boiler house and the installation of new boilers. D. M. Hartnell is manager of the company.

To finance the installation of new machinery costing \$250,000 the New Westminster Paper Co., Ltd., New Westminster, B. C., has issued bonds amounting to \$175,000. Part of the fund will be used for the construction of a new paper mill at Bellingham, B. C., to be known as the Pacific Coast Paper Mill, which will be operated as a subsidiary of the New Westminster Paper Co.

Foreign

BIDS are being asked by the Municipal Council, Johannesburg, South Africa, for furnishing and erecting a municipal artificial gas plant. Information at the office of the Bureau of Foreign and Domestic Commerce, Washington, reference South Africa No. 225349. Also, at the office of the American Consulate, Johannesburg, G. K. Donald, consul.

The Berlin Electric Elevated & Underground Railways Co., Berlin, Germany, is disposing of a bond issue of \$15,000,000 in the United States, a considerable portion of the fund to be used for extensions and improvements in its lines, shops, power plants, etc., with installation of additional equipment. Speyer & Co., 24 Pine Street, New York, bankers, are fiscal agents for the bond issue in this country. P. Wittig and H. Dettmar are managing directors for the company.

A company operating an iron and steel works at Baginoli, Italy, has work under way on a new cement mill, to be run as an auxiliary of the steel plant. The initial plant will have a capacity of 200 tons of cement per day, and has been designed to allow for the installation of additional machinery for twice this output in the future. Information at the office of the Bureau of Foreign and Domestic Commerce, Washington, under reserved information No. 225131. The American Consulate at Naples, Italy, Harold D. Finley, consul, also has data regarding the project.

The Union National Petroleum Co., recently formed as a subsidiary of the Union Oil Co. of California, Inc., Union Oil Building, Los Angeles, with capital of 70,000 shares of stock, no par value, is planning for operations in Venezuela. The company has taken title to 875,000 acres of oil lands, previously held by the Pantepec Oil Co., and will begin drilling, pipe line and kindred work at an early date, including the construction of storage and distributing facilities. The new organization has secured a fund of \$3,500,000, the majority of which will be used for the expansion. W. L. Stewart, president of Union Oil Co., will occupy the same position with the Union National Company.

Guillermo J. Orfila, Port Mahon, Balearic Islands, Spain, is in the market for power-driven chain water lifts to handle small quantities of water from deep wells.

The Municipal Council, Loanda, Angola, is asking bids until Feb. 7 for a concession for the construction and operation of an electric power plant and street railroad. Specifications on file at the office of the Electric Equipment Division, Bureau of Foreign and Domestic Commerce, Washington, Reference Africa No. 223777.

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Philadelphia, Widener Bldg. Charles Lundberg
Buffalo, 835 Elliott Sq. B. L. Herman
Detroit, 7330 Woodward Ave. Peirce Lewis
Hartford, Conn., P. O. Box 81. D. C. Warren
New Jersey, Hotel Regent, Newark, N. J. W. C. Sweetser
New York, 239 West Thirty-ninth St. Chester H. Ober
San Francisco, 320 Market St. W. A. Douglas

The Argentine Government, Buenos Aires, is reported to be considering enlargements in its oil refinery at La Plata. Additional storage and distributing facilities are also planned at Santa Fe, Mar del Plata, and Ingeniero White, with conveying, loading and other handling equipment. The American Consulate, Buenos Aires, Sherwood H. Avery, assistant trade commissioner, has information regarding the projects.

Heinrich Werther, Magdeburg & Werther, Halle a. S., Germany, desires to receive American catalogs on ice machines, ice boxes, baking machines, concrete mixers and oil heaters for house heating.

Industrial Finance

The Otis Steel Co., Cleveland, reports a profit of \$735,491 for the quarter ended Sept. 30 after interest and other charges, but before depreciation and Federal taxes. This compares with \$524,996 in the second quarter and with \$400,112 during the third quarter last year. Profits during the first nine months before depreciation and Federal taxes were \$2,149,131, as compared with \$1,595,034 the corresponding period of 1925.

The Frankenberg Refrigerating Machinery Co., 345 Jackson Street, Milwaukee, manufacturer of self-contained artificial ice machines, has filed a voluntary petition in bankruptcy. Schedules disclose liabilities of \$158,023 and assets of \$40,308. Liabilities include \$88,070 in time payment notes owed the company, and debts for machinery equipment and materials, largely to Milwaukee concerns. Of the assets, \$30,000 is machinery, tools and manufactured stock.

Net earnings of the Superior Steel Corporation, Pittsburgh, for the quarter ended Sept. 30 were \$52,970 and for the nine months \$276,365.

The net profits of the General Fireproofing Co., Youngstown, Ohio, for the third quarter, totalled \$150,134, which is equivalent to \$1.85 a share on outstanding common stock. The net earnings for the second quarter amounted to \$3.61 per share on common stock, and for the first quarter, \$2.44 per share.

Elyria Iron & Steel Co., Cleveland, reports net sales of \$1,822,000 for the third quarter of 1926 and earnings, after Federal taxes and other charges, of \$183,826. Sales for the first nine months of the year aggregated \$4,480,000, as compared with \$3,784,000 during the corresponding period of 1925. Net earnings for the 1926 period amounted to \$472,622. The statement includes the consolidated earnings of the Superior Metal Products Co., Elyria, Ohio, and the Standard Steel Tube Co., Toledo, which were acquired by the Elyria company during the year.

Ludlum Steel Co., Watervliet, N. Y., reports net income of \$62,928 for the third quarter of 1926 after deductions for depreciation, interest, Federal taxes, etc. This compares with an income of \$100,611 for the corresponding period of 1925.

Net profits for the fiscal year ended June 30, 1926, of Rimamurány-Salgó-Tarján Iron-Works Co., Ltd., Budapest, Hungary (Rima Steel Corporation), amounted to \$308,844.21, after various expense deductions, according to a report accepted by the general meeting of auditors and shareholders held in Budapest, Oct. 30. The company has assets of \$11,997,863.20.

New Trade Publications

Air Filter.—American Blower Co., Detroit. Bulletin 2223, of eight pages, devoted to an analysis of the advantages of the American Blower air filter in purifying air and providing adequate ventilation.

Rolling Doors.—Cornell Iron Works, Inc., Long Island City. Catalog of 32 pages gives a general description of types of rolling doors with illustrations; also a history of the Cornell Iron Works, Inc.

Volume and Temperature Meters.—Bacharach Industrial Instrument Co., Pittsburgh. A 12-page leaflet gives reasons for measuring the volume of air in the blast furnace and describes the effectiveness of the blast-meter in such capacity. It also tells ways of taking non-ferrous metal temperatures and describes the use of the Ardometer in the heat treatment of steel.

Gear Speed Reducers.—Catalog No. 200, issued by Foote Bros. Gear & Machine Co., 215 North Curtis Street, Chicago, contains 623 pages of gear engineering information such as formulæ, tables and practical problems covering the design and application of various kinds of industrial gears and speed reduction units. In addition there is such information as mensuration, trigonometric tables, weights and measures, machine shop data and a chapter on electric motors.

THE LAST WORD

(Contributed by the Reader Service Department of the Iron Age Publishing Co.)

"As it seems to be the fashion to name blast furnaces after women, don't you think the Hudson Valley Coke & Products Corporation of Troy, N. Y., should call its stack Helen?" inquires G. L.

Yes, sir, we do. Helen of Troy it is.



Gerard Swope, president of GE, was on the program for an address at a meeting I attended the other night. What type of man was he, and how would he impress his audience? I wondered.

But he had not spoken five minutes before all of us knew that here was a man as big as his job. Though physically no giant, he has the simplicity of a man great in mental stature. Keen, kindly, and tolerant, he makes you believe that he himself believes everything he

says.

And at the same time you get the impression that he does not hold his own opinions in holy awe, inviolable as the eighteenth amendment, for example.

In short, he is the kind of a man who might cause you to say, "I don't care whether the company he manages makes motors, mousetraps, matchsticks or mezzo-tints, I would like to own some of its stock."

When handling dynamite avoid acrobatics.

Humor is said to be the lubricant that helps prevent friction in human relations. It can also function in the same capacity as a handful of gravel thrown into a gear box, if it ventures on dangerous ground. To attempt to be funny about a man's religion, his bridge game, or his work is always dangerous.

Better joke about his family tree than to detract from the dignity of his occupation. I recall the editor of an employees' magazine in a large plant, who thought it would be quite comical to write a series of articles burlesquing the various departments in the plant. He told of the difficulties the drill press operators had in getting the holes straight in macaroni. He described how the mighty forging hammers pierced the doughnut to fashion the hole demanded by the fresh air fiends. The micrometrical exactness of the slices of Swiss cheese, pared by the planers for sandwiches served in the factory lunch room, was commended.



The series was a decided success, except among the workers in the departments burlesqued. They seemed to have lost their sense of humor for the time being. They felt the dignity of their work had been lowered, and they resented it. Some of them left. The ruffled feelings of those who remained were not smoothed down for many months. Production was curtailed in an especially busy period. All in all, it was a costly bit of comedy.

The present editor of that magazine is one who fully realizes that you cannot injure a man's pride in his work without reducing his value to his employer.

A. H. D.